The Determinants of Customer Attrition in Umniah Mobile Company

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The Determinants of Customer Attrition in Umniah Mobile Company

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ABSTRACT

This study aims at identifying the main factors affecting customer attrition in Umniah Mobile Company in the Jordanian market.
The current study is a case study that used analytical descriptive methodology and in-depth interviews for the purpose of describing and analyzing factors affecting customer attrition in terms of Technological factors (handset technology, features, and mobile network technology), Economical factors (Call tariffs, activation process, and subscription fees), Quality factors (network coverage, call quality and customer service) and Social factors (experimenting, image, and friends/family), And find out whether there were a statistically significant differences in customer attrition which can be attributed to demographic factors (Gender, age, income and residency).

The analysis unit consisted of a total of 100 respondents from a random sample of all idle Umniah subscribers who didn't use their mobile service for 3 months or more in the first week of Mar-2011, 338 call attempts were made to collect primary data, beside four in-depth planned interviews with experts in the field, and only two of them took place.
The study used a set of statistical techniques to show the subjects characteristics and to test the hypotheses through (SPSS) to obtain the frequencies, percentages, means and standard deviations. Furthermore other tests were used such as Cronbach Alpha to measure study tool reliability, T-Test to examine the mean difference between the sample and the population , and simple and multiple regression tests to find the impact of each factor of technological, social, economical and quality factors on customer attrition alone and as a group, and one-way Anova test to find out if there is a statistically significant difference ($\alpha \leq 0.05$) in attrition as a result of the technology, social, economy, and quality factors which can be attributed to demographic factors.

The study concluded with various results as follows:

1. There is no statistically significant relationship between (technological factors and economical factors), and customer attrition in Umniah.
2. There is a statistically significant relationship between (social factors and quality factors), and customer attrition in Umniah.
3. There are statistically significant differences in attrition as a result of technology, economic, social and quality factors which can be attributed to specific demographic factors (Gender, age, income and residency).

Based on the above results, the study recommended that Umniah should put more effort and focus on the quality and social factor, as these factors are the main factors affecting customer attrition in Umniah, on the other hand, although the technology and economy factors had no effect on the customer attrition in Umniah, but to keep these factor neutral to customer attrition in Umniah, Umniah should overwhelm the competitor technology and offers, or at least, match it.

Chapter One

Introduction

1.1 Rationale of the study

Today the telecommunication sector is considered to be one of the fastest growing sectors, enabling faster and less costly network rollout that is having a dramatic impact on the total number of mobile phones in the World.

The growth of the mobile phone market is more important in the developing countries, new telephone connections in low-and lower-middle income countries have outnumbered those in upper-middle and high-income countries since 1998 (world Bank, 2008c).

Nowadays the mobile communications are evolving from the era of simple functions (voice services, text messaging) to a more advanced devices that are adapting an intelligent systems, making mobile devices more advanced and easier to use, such as the black berry service, that allows corporate and individuals to be able to operate their business through a specific domain and private data channels, in addition to the multimedia SMS, voice SMS and many other services that Umniah offers, which gives a clear picture about the various products and services that the company can offer in a highly competitive market.

Such products and services are derived from the emerging need of customers and the concept of keeping the customer loyal and decreasing the possibility of switching among various mobile companies in the market place.

Jordan is one of the developing countries in the Middle East, which is starting to introduce, and implement new customer driven concepts in the field of the telecommunications, as a result of the high competition among companies to satisfy

customers, keep them from switching and decreasing the concept of customer attrition, which is affecting the telecommunication business arena.

This study will provide an appropriate guidelines, in having a more clear understanding about the customer attrition concept, implantation, competing in a highly competitive environment and searching for new ways to develop strategies that affects the concept of customer attrition in the Jordanian telecommunication companies.

1.2 Problem Statement

In the telecommunication industry, customers are able to choose among multiple service providers and actively exercise their rights of switching from one service provider to another. In a fiercely competitive market, customers demand tailored products and better services at lower prices, while service providers constantly focus on acquisitions as their business goals. Given the fact that the telecommunications industry experiences on average a 30-35 percent annual churn rate and it costs 5-10 times more to recruit a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition (GSM World Association, 2008 Statistics).

Over the past 12 years, when the second mobile services provider company opened in Jordan, the term (Churn or attrition) become a critical factor effecting telecom companies, in addition to the growing liberalization and integration of global trading systems, the elimination of political and economic boundaries, the pervasive developments of communications technology, and the rapid globalization of products and services are rapidly transforming the global business arena.

The enormous growth that faced the Jordanian telecom market in general, and the mobile market in particular, developed a highly competitive market that evolved the concept of customer attrition in the market, the research problem in the study addresses the following questions:

- What are the main determinants of customer attrition in Umniah Mobile Company?
- Is it possible to measure the factors that stand behind the customer attrition?

1.3 Aim of the Study

1. To identify factors affecting customer attrition in Umniah in the Jordanian telecommunication market.
2. To measure the effect of those factors on customer attrition.
3. To propose suggestions and recommendations that can be used to minimize customer attrition in Umniah.

1.4 Thesis Overview

A literature review is first carried out, in which customer attrition models and factors affecting customer attrition were discussed. Thereafter follows an overview about the industry that is dealt with in the research, afterwards a presentation of the methodology used in the study, a discussion based on findings from primary data gathered and secondary data gathered, methods of analyzing them is discussed . Finally, conclusion per research objectives and hypothesis, some practical implications and suggestions for future research is presented.

Chapter Two

Literature Overview

2.1 Introduction

There are three mobile service providers in Jordan, and that has led to the increase in the attrition rate, because of the high level of the competition in the market place to remain viable as well as to expand their market share.

The highly competitive companies have crossed a major milestone in its customer acquisition programs, through focusing on customer as its main concern in setting its plans, and strategies within the business scope it operate in.

Such believe of customer orientations adopted by telecommunication companies in Jordan, is driven from the idea that customer loyalty is tapped through the satisfaction scales, including measures of behavioral intentions, relying on regression-based drivers, that links together behavioral intentions such as repeat purchase, attrition and brand switching.

To avoid the phenomena of customer lose, the company should care about their customer's needs and must track and understand these needs. Beyond the data collection, companies should focus on customer relationship, caring and letting them know about their scope of business and what range of products and services they can offer to the end users, by establishing a two-way communication channel aiming toward decreasing customer attrition toward company's services (Charles *et al*, 1999).

In general there are no previous studies that covers customer satisfaction toward a specific mobile provider, because it is considered a new technology , many studies started in the late 90's to search for factors effecting customers satisfaction, loyalty and most importantly their level of attrition (switching between providers).(Emad Masoud, 2008).

2.2 Customer Attrition Overview

There are many terms used to describe the loss of customers that occurs due to a wide range of factors, arising a commonly used term is customer attrition, also called turnover or customer churn. (N. Madison, 2011)

Attrition rate as a terminology applied to a customer base, is referred to the proportion of contractual customers, or subscribes that leaves a supplier within a specific period of time, which is considered as a indicator of customer dissatisfaction, or they have got more cheaper offers or better than the one provided by the current supplier (Wikipedia-Business terms 2010).

Hence businesses often spend a good deal of their time working to acquire new customers, retaining current customers is critical as well. If a business cannot retain a significant percentage of its customers, it is unlikely to enjoy sustained success. , For this reason, customer attrition rates are usually very important. Sometimes customer attrition occurs because of issues related to customer service. For example, if a business has rude representatives, customers may stop dealing with it simply because they do not want to be treated poorly, such cases are usually in service sectors like the telecommunication sector that depends on service to keep its customers coming back.

Telecommunication companies often use customer attrition analysis and customer attrition rates as one of their key business metrics because the cost of retaining an

existing customer is far less than acquiring a new one. Companies from these sectors often have customer service branches which attempt to win back defecting clients because recovered long-term customers can be worth much more to a company than newly recruited clients. (Hughes A.M 2010).

Companies usually make a distinction between voluntary churn and involuntary churn. Voluntary churn occurs due to a decision by the customer to switch to another company or service provider involuntary churn occurs due to circumstances such as a customer's relocation to a distant location. In most applications involuntary reasons for churn are excluded from the analytical models. Analysts tend to concentrate on voluntary churn because it typically occurs due to factors of the company-customer relationship which companies control such as how billing interactions are handled or how after-sales help is provided (Rob Mattison 2005).

When companies are measuring their customer turnover they typically make the distinction between gross attrition and net attrition. Gross attrition is the loss of existing customers and their associated recurring revenue for contracted goods or services during a particular period. Net attrition is gross attrition plus the addition or recruitment of similar customers at the original location. There are a number of business intelligence software programs which can mine databases of customer information and analyze the factors that are associated with customer attrition such as dissatisfaction with service or technical support billing disputes. More sophisticated predictive analytics software use churn prediction models that predict customer churn by assessing their propensity of risk to churn. Since these models generate a small prioritized list of potential defectors they are effective at focusing customer retention marketing programs on the subset of the customer base who are most vulnerable to churn. (Carlos Valdecantos 2009)

Attrition rate can be minimized by creating barriers that discourages customers to change suppliers or through retention activities, such as loyalty programs (Buckinx and Dirk, 2005). Although the attrition phenomena is widespread in different fields, it is certainly influenced by variables involving both practices and environmental systems, such factors might include physical description about the services or products offered by companies such as a particular size, shape, moisture content and porosity of the product/ services that determines the severity of the attrition effect (Bemrose and Brigwater, 1987. Gundepudiet, 1997. Peleg and Normand, 1987. Shipway and Hut Chings, 1993).

In a highly competitive markets, the idea of retaining and developing the existing customer base, is seen as a crucial for the future success of the firm, by which the customers retention creates a stable pool of customers, for a firm's products/services (Oliver,1997).

The concept of customer's loyalty of trying more, willingness to pay higher prices, passing positive word of mouth, playing a vital role in decreasing the number of customers switching to other brands, that creates a positive link between customer retention and profitability (Colgate and Danaher, 2000. Arnold and Reynolds, 2000. Reichheld, 1993. Reichheld and Sasser, 1990. Berry and Parasuraman, 1996). Where Reishheld and Sasser (1990) states that "reducing defections by 5%, boosts profitability by 25% to 85%". On the other hand Reinartz & Kumar (2000) suggests that the link between customer retention and profitability to be weaker than expected (Martin Boehm, 1999).

Firms now tend toward understanding the factors that influences and drives customer's retention (Lemon and Zeithaml, 2004).

Employee's turnover in organizations might play a role in decreasing customer attrition through their relationships with customers, according to Professor Robert Hurley and Hooman Estelami, they clarified that the employees turnover can be used as a predictor of customer satisfaction (Nicholas Brealy, 2010).

An example to emphasize on the concept of employees turn over relationship to customer satisfaction and loyalty. Fedrick Reich showed that more than half of the brokerage clients, who changed companies that follows their brokers who switch first, showing the relationship between employee and customers, and how that effects the firms performance and survival in the market place (Nicholas Breadley, 2010).

Satisfying customers prevent customers from leaving the product/service supplier; the idea of customer attrition is based on a process related to the customer's satisfaction toward the firm they are dealing with. The company that keeps customers and monitors them, satisfying their needs, will protect itself from the concept of customer attrition and losing them and will stay viable in the market. The awareness of the company toward such a concept is a vital step in protecting its position, status in the market (Nicholas readley, 2010).

Churn prediction aims to identify customers who are about to abandon their relationship with the company, by which a proactive marketing action may be taken to prevent customer attrition. Churn prediction can be done through the process of identifying previous churns and non churners, driving an input/output mapping between observable customer characteristics (e.g. age, gender, duration of service and a target variable), the result of such a model can be used as an identification of customers who are at risk of churning.(S.Lessman and S.Vob)

2.3 Models in Customer Attrition

The previous improvements in information technology provided the researchers with a rich customer transactions data, and gave the possibility of predicting customers purchasing forecast. Knowing the difficulty of forecasting whether a customer will purchase again from a particular company, and the ability of predicting the transactions the customer will conduct in the future. (Shaohui Ma, Joachim Buscken, 2010).

Many theories have been developed to analyze and measure the customer attrition based on the assumptions that a strong relationship between customer retention and profitability exists. For instance, long term customers buy more and seen as less costly to serve, therefore it is more profitable to keep and satisfy existing customers than renewing the customer database (Burez and Poel, 2007). For example stimulating new customers in mature markets, involves keeping them away from competitors, by giving them more favorable offers, and tempting them to stay.

The type of models that has been suggested by researchers in the field of customer attrition is based on contractual setting models that considers the length (duration), the depth (usage), and the breadth (cross-buying). As the **Durational** Model that was proposed by Bolton *et al* (2004), it indicates the direct relationship between life time duration and revenue. The prediction of duration will provide a good estimation of revenue and profits (Howard F. Dover and R.S, 2006).

The major challenge that faces the duration model is the availability of data on consumer behavior and transaction data, and the inability to access the consumer's preferences and their demographics characteristics, where these data are fundamentals in building a better duration model to predict attrition for all customers. (Howard, 2006).

Another model that is being developed for duration and observational censoring, is the **Harvard** Model proposed by Helsen Schmittlein in 1993, through the employment of time-invariant measure of customer usage, they found that usage is positively correlated with duration, in addition that the more it takes the customer to use the company's products/ services offered the more they will have the opportunity of knowing the customers and being able to stimulate them more, reaching customer loyalty and decreasing the possibility of customer attrition and driving the customers to other product/service provider. (Howard, 2006)

The increased usage by customers indicates a great satisfaction, which enhances the probability that a customer stays with the firm (Bolton, 1998). On the other hand, the dynamic effects of usage on duration were measured by a time-varying measure of usage, by which the increase or the decrease in usage, will give managers in companies a clue about customers life-time.

Applying such a model to the cellular service provider by Bolton in 1998, showed that the overall satisfaction is positively related to the duration and the effect is enormous when the consumer is having more extensive experience with the service company.

Another model is the **Pareto/NBD** model is considered as a benchmark model that is developed by Schmittlen in 1997. It has been employed in many studies as Shoahui and Buschken (2006). The model explains how customers purchase until they defect, after the defection customers do not return; in addition customers do not become inactive and then switch to an active state.

This model might underestimate the number of expected transactions from customers whose probability of returning is zero (Rustelal.2004). For instance some customers

purchase frequently in certain periods, between the active and non active periods, it is appropriate to view them as active or inactive rather than dead.

The last model to measure customer attrition is based on a non-contractual setting; it is The **Hierarchical Interrupted Poisson Process model (HIPP)**. This model assumes that customers are in one of two stages, either active or inactive, and the model has the possibility to operate in continuous time, giving the model the ability to predict the future of customer transactions, and it perform better than the other models suggested.

The Customer Churn Management (CCM) is a popular method that is used in telecommunication industry to categories telecommunication companies, by adopting one of the following approaches:

1. **Research Approach**, through this approach the company waits until the customers cancels the service, and then offers them an incentives (e.g. a promotional gift) to stay.

2. **Proactive Approach**, through this approach the company prevents the customer from canceling the service before it occurs, through mass marketing activities that focuses on the superiority of the service/product offered.

The proactive approach drives the company toward increasing brands loyalty, by intensive and advertisements that is the key to retaining customers. Adopting the CCM method identifies churners in advance and guides the company to customer defection by offering incentives to keep customers satisfied (S.lessman , 2000).

The final approach was developed in 1996 is the **Customer Life Cycle (CLC) Process** within a firm (Blattberg and Deighton, 1996). The cycle starts with different customers entering and existing at different times, the process of growing the value of customers

base to the fullest can be represented as the strategic impact of managing the customer lifetime value (CLV) process in the course of a customer's life time with company (Kumar *et al*, 2004). See figure [2.1] below. The key component of the CLV process is customer acquisition and retention and the other elements in the process are marketing costs that are incurred for every customer in every period.

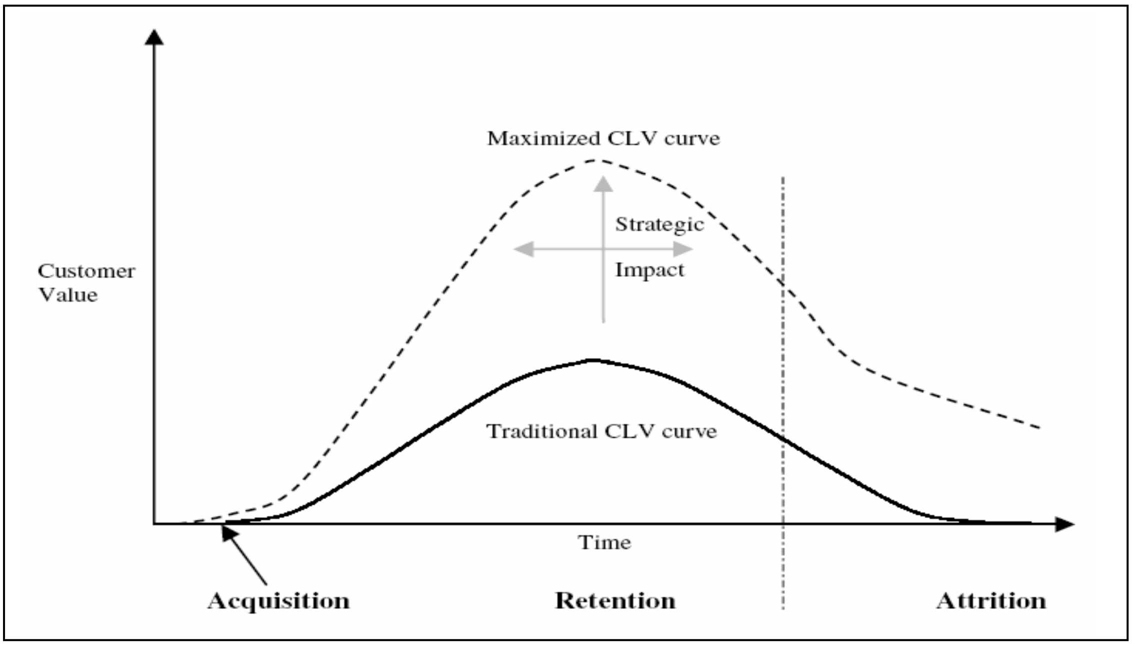
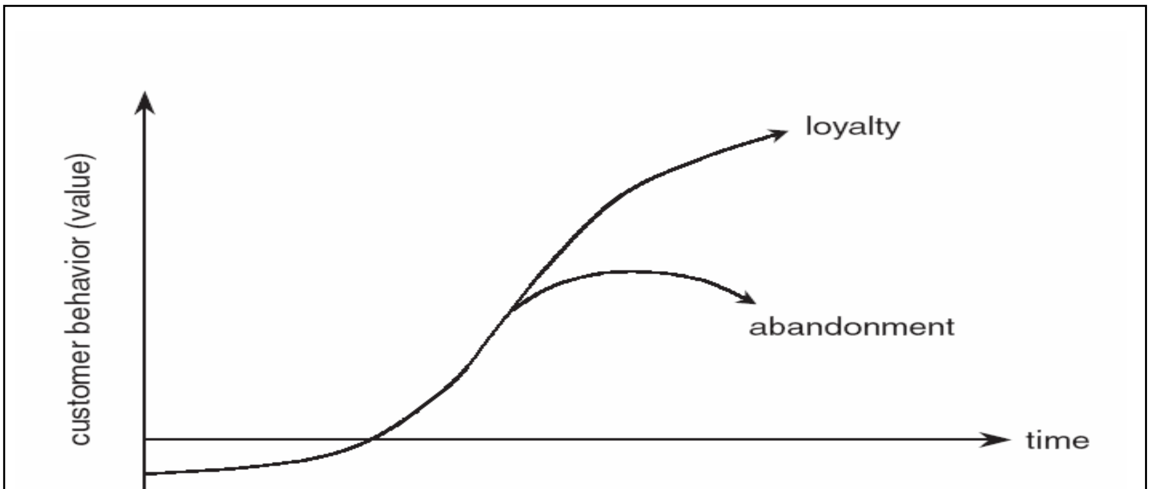


Figure [2.1] Managing the Customer Life Cycle process (Cutter and Sterne, 2000)

Figure [2.2] below, shows that the cycle starts by reaching potential customers toward loyal customers establishments, many individuals customer life cycles (CLC) are cut short by abandonment and attrition (Cutter and Sterne, 2000). The life cycle provides the company with the creation of relationship with customers, through the first stage, by reaching the other two stages the relationship will be to maintain the relationship.



Companies that implements campaigns based on the CLC methods, helps the company to understand which product/service, specific customers, segments, are likely to adopt at a verifying timeframe. By developing campaigns, strategies, and tactics depending on the CLC as a benchmark, the company is actually setting its strategies based on a customer perspective, rather than product perspectives leading the customers toward adopting the service/product, that is actually developed according to their desires, and knowing their needs and wants that gives companies a feedback on customers retention, decreasing number of customer attrition that might be faced through the customers life cycle within the company. (V.Kumar,Girish Ramani, and Timothy ,2004)

2.4 Factors Affecting Customer Attrition

Marketing researchers have found many factors affects the behavior of customers and their relationship with companies, and plays a vital role in keeping customers dealing with the company's product/service, and decreasing possibility of customer attrition like price, the brand, service, technology, information and delivery.

Sulikowski (2008) in his white paper "Mobile Operator Customer Classification in Churn Analysis" identified the Churn factors and classify them into five main groups

(Demographic data, Loyalty data, financial data, social factors, Call data and Additional services data).

DMX Group (JAN 2009) white paper with title "Churn Reduction Strategies" considered service prices and technology to be the most important factors behind customer attrition.

The Following are the main factors proposed by many researchers and studies:

- **Economics**: Is one of the major factors that influence the purchasing decision. Despite the best efforts of service providers to make their companies unique and interesting, the resounding number-one reason for churn mentioned by consumers is always price. Since customers are sensitive to price, a company must respond to price pressure from its competitors. (Kirkpatrick, 2007)
  Many companies create programs, promotions, and campaigns that allude to price benefits, but which obscure the nature of the savings to the point that consumers are unable to compare competitors' offers directly. For example, in one market a carrier offers customers per-second versus per-minute billing. This means that the consumer saves money on every fraction of a minute left over at the end of a call. Although this might be of obvious value to a consumer, trying to compare the benefit in actual dollars would be quite complicated. (Doug Stace, Ajay Bhalla, 2008).

- **Service, information, delivery and quality factor**: In 1970, the factors that affected customers were brand and price, moving to 2000, service, information and delivery were the main factors (Shaw and Ivens, 2002). Knowing more about the product/service, having as much information as possible effects the

customer's attachment and choice, the more they know the more they become convince and drives the customer into purchasing the product/service.

The telecommunication industry is, after all, a service industry, and the quality of the service is what people are buying, as for the consumer, decisions about quality and convenience are very personal and subjective and as such are extremely difficult to measure, assess, and act upon.

In some markets, consumers actually attempt to overcome quality problem by acquiring multiple handsets from multiple providers, guaranteeing that they have coverage and good service at all times.

(Mattison, 2005)

- **Social factors and Total Customer Experience and**:

The strongest of the social churn factors is the friends and family issue. People will often change the decisions they have made based on pressure from these groups.

In many cultures, the family will exert a strong influence on decisions. Adult children change their decisions many times to conform to the wishes of parents.

Even more powerful than family pressure is peer pressure, especially on teenagers and young adults. If a carrier happens to be recognized as the cool, hip, young people's carrier, many customers will switch from their competition due to social pressure (Mattison, Rob, 2005).

Strongly related to the pressure that friends and family may create for a consumer is the self-image that the consumer brings to the provider contract. In some cases, the image projected by the company can clash with the self-image

of the consumer. In these cases, consumers will switch to a company with an image more in line with their own. (Junxiang Lu, 2002)

In mid 2002 the customer's attachment to the brand is based on his experience rather than the brand community and the brand company. Hence customers experience goes beyond the customer satisfaction and became a new concept since satisfied customers could still defect. (Jones and Sasser, 1995)

For companies to be able to compete successfully they are applying the principle and tools of Total Customer Experience (TCE) to generate and sustain enduring lasting customer loyalty that are important to maintain customer focus and creating customer preference.

The phrase of total customer experience (TCE), used to describe the relationship a customer has with a business. Customer experience refers to the total of all experiences the customer has with the business, based on all interactions and thoughts about the business. Customer experience is an integral part of customer relationship management, and it is important to businesses because customers who have a positive experience are more likely to become repeat customers and loyal customers of the business. (Merholz, 2009)

Recently many managers have shifted their focus to creating value for their customers, about 85% of senior business leaders were interviewed in a study, results showed that they all agree that the traditional physical elements such as price, delivery and lead time are no longer an effective business strategy effecting customer purchasing behavior, customer experience is considered a new factor affecting customer behavior in the market (Shaw and Ivens, 2002).

Successful companies create wealth by attracting and retaining customers as certain loyal customers are willing to be more for brands, brand loyalty discourages brand switching to competing brands (Dick and Basu, 1994). On the other hand the high level of competition, the competitive price of new brands and attractive promotions of new brands can quickly increase number of customers, which is important to investigate customer loyalty (Shiffman and Kanuk, 1997).

For a company to be able to apply the Customer Experience Factor, it should consider all the elements that go into relationship and how they fit together. Such a strategy calls for a top-down commitment to make deep and enduring customer relationship, experiencing a company's top investment priority (Crosby and Johnson, 2002).

- **Life time value of a customer**: It is the life time value of a customer, what makes customers stay in a relationship with a company and the time of him being a customer is considered valuable from a business oriented point of view, by which companies are keen to keeping customers in their scope as much as that is used in consumer goods, such a factor works depending on the calculation of how much should be spent to prevent consumers from brand switching, the life time value factor comes from direct marketing, where long-time behavior is the key to success.

  The life time value arises from future purchase, referrals avoiding negative word of mouth (Mosed Zinddin, 2006), it is calculated according to the following:

  - Determine target customers
  - Identifying the annual marketing and sales cost s of gaining, maintaining those customers.

- Identifying the cost of selling additional product/service to them.
- Identifying revenues of identified customers.
- Subtract cost from profit to produce a stream of net contribution per year.
- Use discounted cash flow techniques.
- Divide the total by number of customers to find out a per customer value.

By focusing on these factors this will help the companies to find a ways to develop ongoing relationships with customers, in order to ensures repeat transactions, by knowing current customers, their needs and what product/service they use, such a strategy drives companies to transform customers into loyal long-term multiple

- **Technology factor**: One of the important reasons that churn is guaranteed to happen is that technology keeps changing. As long as there are newer, better, more stylish, and less expensive alternatives invented, customers have more and more to choose from. Telco technology, as it stands today, generates its own obsolescence in an unbelievably short amount of time. (Mattison, 2005)

2.5 Industry Overview

2.5.1 Introduction

Telecommunication as a terminology is defined as the transmission of information over significant distances to communicate. The development of telecommunication was to handle voice communications (Brande, 1998). The largest demand today in telecommunication is for data transfer. The volume of data traffic across the Atlantic

Ocean is more than the voice traffic; the telecommunication concept is revolutionized after the merge between voice and data. (Dowlig et al, 1994)

Telecommunications play an important role in the world economy; the worldwide telecommunication industry's revenue was estimated to be $3.85 trillion in 2008. The service revenue of the global telecommunications industry was estimated to be $1.7 trillion in 2008, and is expected to touch $2.7 trillion by 2013. (Torsen J.Gerpott, 2010)

The telecommunication sector is affected by the technological developments, leading to the change in demand for specialized services, deregulations, privatization, liberalizations and globalization of telecommunication markets. (Dowlig et al, 1994)

In 1996 the telecommunication act was allowed through three forms of entry; replication of incumbent's infrastructure, leave of the incumbent's existing infrastructure, or resale of the incumbent's service which opened the market of residential and business telephone service to competition. (Rand, 2008)

In 1997 seventy countries have signed a telecommunication agreement of world trade organization, opening markets for countries signing the agreement. The agreement reduced the cost of international calls by 60% in the UK. (Williams and Cone, 1997) Also it was expected that it may double the telecommunication market in size by year 2000 (Coyle, Godsmark, 1997) and Enhancing the economical growth (Bennistor, 1997)

2.5.2 Development of Telecommunication Sector

The changes in telecommunication services have changed dramatically during last decade, the internet and the enormous growth of the World Wide Web, has emerged new telecommunication products/services and providers. On the other hand, business

firms have also increased dramatically, and the use of the internet and the web for electronic commerce, and collaboration, in addition to the services available and various vendors, consist a rich group of options available to meet company's telecommunication needs, offering business manager's decision-making alternatives. (James A.O'Brien, 2000)

Nowadays, telecommunication companies are in the phase of penetrating new lines of business to forecast demands for a product that they have little or no direct historical experience about. For instance, many local exchange carriers (LEC's) offers growth products, such as a new long distance plans, data and internet access, wireless and video services, creating a new revenue streams and retaining market share for their core local access services.(Louis Anthony Cox,JR, 2001).

Another example of the telecommunication developments, are personal communication service (PCS), PCS is a generation of wireless-phone technology that combines a range of features and services surpassing those available in analog and digital cellular phone systems, providing a user with an all-in-one wireless phone, paging, messaging, and data service. (Louis Anthony Cox,JR, 2001)

Telecommunication sectors has been effected by the rapid change from analog to digital network technologies, telecommunication has always been operating depending on the voice oriented analog transaction system that is designed to transmit frequencies generated by sound waves of home voice.

In addition to the technological developments, local and global telecommunication networks are rapidly converting to digital transmitting technologies that transmit information in the form of discrete, movement of larger amount of information, greater economy and a much lower error rates than analog systems beside the ability to carry

multiple types of communication (data, voice, video) on the same circuits. (Louis Anthony Cox,JR, 2001)

Cellular phones has been developed and added to the wide range of products and services offered by the telecommunication companies, cell phone systems have been using analog communication technologies, operating at frequencies in the 800 to 900 MHz cellular band, afterwards, the system have been developed to digital systems, providing greater capacity and security beside the variety of functions, such as the voice mail, messaging, and caller ID, such as digital cellular system, which is an important communication way nowadays, a necessity, everyone now owns a cell phone providing mobility for everyone, everywhere (Louis Anthony Cox,JR, 2001).

The technological developments affected the cellular phones, in a way that it added the internet to the device, the mobile internet (MI) includes access to the internet through the availability of any wireless technologies, such as WMAN/WiFi or a second and third generation cellular mobile networks, such as GSM, W-CDMA/UMTS,CDMA-2000 (TorstenJ.Gerpott, 2010).

Such features add value to the devices offered to customers, offering customers wide range of features or activities that they can conduct through mobile phones, beside services offered from telecommunication companies to access the features through the mobile, offering a wide range of mobile communication activities such as web based information. (Torsen J.Gerpott, 2010)

Finally, telecommunication companies are using developments in technology to evolve in the market, using new improved technologies in their products/services offered to customers.

According to the fast growing developments in telecommunications worldwide, which made many countries to open the door for privatization and governmental bodies partially withdrawal, allowing other companies to enter the market, providing variety of services for customers within affordable prices, with high quality, giving customers the opportunity to chose from more than one provider.

2.5.3 Era of Mobile Phones

The history of mobile phones goes back to the prosperous industrial period after the World War II, although mobiles were developed before eighties, its use was limited to the government and industry only, and it was used to operate through land communication network manually.

In year 1947 one of Bell's lab engineers explained a true mobile radio that can be used in mobile phone areas, and he claimed that all elements of the radio and mobile are known and represented in a network that covers small geographic areas called cells, and a transmission unit in every cell and frequencies, can be used frequently within different cells. Afterwards in 1969 Bell laboratories invented the first commercial mobile phone, through the use of frequencies continuously and frequent within a specific geographic area, the mobile model appeared depending on the transistor technology, meaning the end of empty pipe technology in telecommunication sector despite its design, the mobile size was huge, needing a cargo to move it, that made scientist and researchers pursing a smaller design and they were successful in 1970, through the design of the first mobile phone that can be carried, through putting it in a case. In 1973 Motorola Inc, Completed the original design of a mobile phone that can be carried by hand. (Farley, 1995)

In 1983 Motorola produced the first mobile phone 'DynaTAC 800 OX' and launched it in the market. Mobile phones started to increase during 80's with the development of

mobile phones depending on cell networks, which is a group of sending and receiving stations, and built on short distances and it was still relatively big in size, it was used in cars, afterwards, Motorola was the first who produced a mobile phone that can be carried along by humans and known as first generation 1G (History of Mobile Phones, 2006).

Early in 90's the second generation of mobile phones (2G) started to use GSM system (Global System for Mobile Communications) which was built fully from digital circuits, that were fast in sending/receiving in addition to accuracy and used the same bandwidth 900MHZ in the previous mobile generations, in the mid 90's, the first generation was eliminated and all bandwidth transferred to be used by 2G (second generation) of mobile phones (History of Mobile Phones, 2006).

Three digital systems were introduced in mobile phones that could be operated, the systems are GSM, TDMA (Time division Multiple Access) and CDMA (Code Division Multiple Access). In 1996, Nokia company developed a communicator device that is a portable mobile and computer at the same time, capable of sending and receiving faxes, and was able to browse the internet and receive e-mails as well, but the device efficiency was limited, and the reason was that the mobile phone networks were designed in the first place on the base of sending/receiving voice and not information. (Farley, 1995)

After developing 2G mobile phones, researches started toward developing the third generation (3G), a lot of competitors evolved and tried to launch a new technology that led to developing many different criteria's, all of which are different from the ones used in 2G. The 'IMT-2000' (International Mobile Telecommunications) was certified as a 3G measurement system used by the international Telecommunications Union (ITU) to

refer to many third generation (3G) wireless technology, that provide higher data speed between mobile phones and base antennas. (History of Mobile Phones, 2006).

In 2003 Nokia announced its ability to take advantage of the ‘CDMA 2000’ system in the telecommunication mobile sector, increasing the speed in transforming data that reached 3.09 Megabit (MB) per second, the ‘CDMA 2000’ is a family of 3G mobile technology standards, which use CDMA channel access, to send voice, data, and signaling data between mobile phones and cell sites. (History of Mobile Phones, 2006).

By 2009, it had become clear that, at some point, 3G networks would be overwhelmed by the growth of bandwidth-intensive applications like streaming media. Consequently, the industry began looking to data-optimized 4th-generation technologies, with the promise of speed improvements over existing 3G technologies. The first two commercially available technologies billed as 4G were the WiMAX standard (offered in the U.S. by Sprint) and the LTE standard, first offered in Scandinavia by TeliaSonera.

One of the main ways in which 4G differed technologically from 3G was in its elimination of circuit switching, instead employing an all-IP network. Thus, 4G introduce a treatment of voice calls just like any other type of streaming audio media, utilizing packet switching over internet, LAN (Local area network) or WAN (Wide area network) via VOIP (Voice Over Internet Protocol).

2.5.4 Telecommunication Sector in Jordan

The service of mobile phones in Jordan has been launched in 1995, the first Jordanian telecommunication company provided the mobile services was known as (Fastlink)

which is owned now by (Zain). Then Jordan Telecom Company provided the same service through (Mobilcom) that operated in 2000 and now it is owned by (Orange).

In 2004 another company entered the market, 'Express telecom' that started operating in mobile phone services but ran out of business on 2011. Then Umniah entered the market of telecommunication and started its operations in 2005.

Number of subscribers in mobile phones in 1999 was about 118 thousand subscribers with a 2.5% penetration rate; at the end of 2006 the number of subscribers has reached 4.343 million with a 77.6% penetration rate. Table [2.1] and figure [2.3] below are displaying the number of subscriber and the penetration rate in Jordan from 2005-2009. (Telecommunication regulatory commission sector, yearly report, 2010)

Service	2005	2006	2007	2008	2009
Mobile subscribers (1000)	3138	4343	4772	5314	6014
Penetration rate	57%	78%	83.3%	91%	101%

Table [2.1] Mobile Phone and Radio Truncking subscribers & penetration rate (TRC 2010)

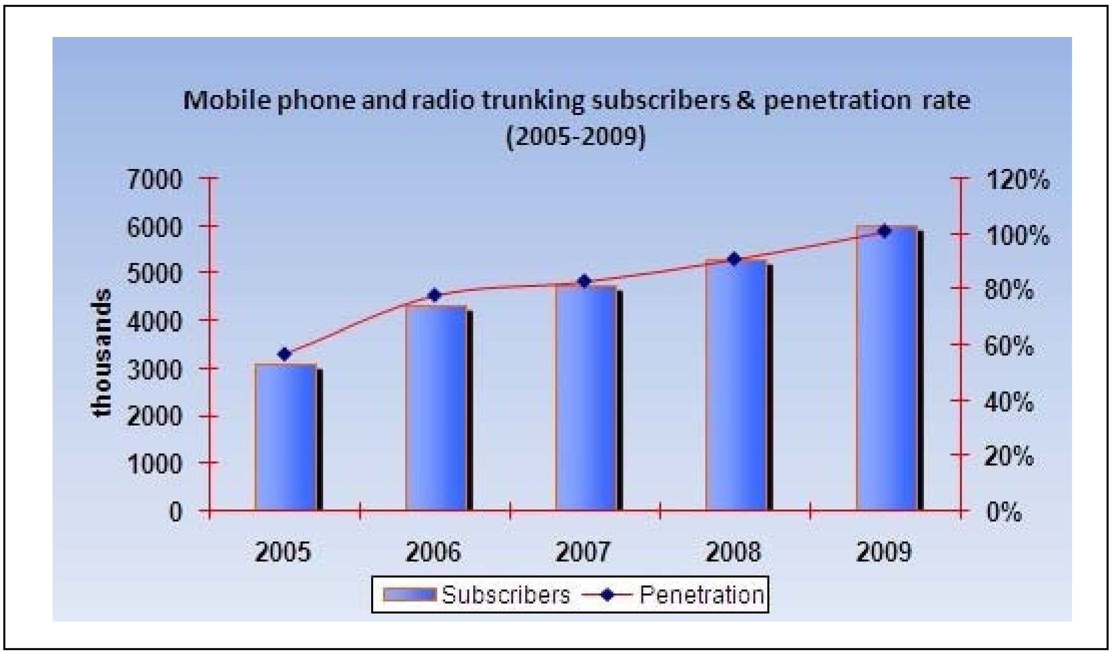


Figure [2.3] Mobile Phone and Radio Truncking subscribers & penetration rate (TRC 2010)

The number of licensed entities that provides the communication service, reached to 40 companies and institutions in 2005, comparing to 23 companies and institutions in year 1999. The amount of investments has evolved in the Jordanian telecommunication sector reached about 88 million Jordanian Dinars (JOD) in 1999 increased to 114 million in 2004, and 155 million in 2005. On the other hand the number of total income in telecommunication sector reached about 668 million JD in year 2004, moving to 864 million JD in 2005 (Telecommunications Regulatory Commission (**TRC**) website: http://www.trc.gov.jo).

2.5.5 Umniah Mobile Company

As the most successful operator to enter the Jordanian telecommunications market, Umniah, a subsidiary of Batelco Group stands for innovation and dynamism founded on the highest possible level of customer and market focus. Umniah was granted the third GSM license in August 2004 issued by the Telecommunications Regulatory Commission to operate, manage and own a public digital cellular mobile network. On March, 2007, Umniah was granted the WiMax License to develop a nationwide network to provide fixed and mobile WiMAX services to commercial and residential customers. The key to Umniah's success is being able to move Jordan's mobile market to a fully fledged mass-market product by addressing specific growth segments with both attractive prices and tailor made products. Upon its launch on June 26th, 2005, Umniah challenged the conventions of the industry by setting new service standards both nationally and regionally.

Today, Umniah is positioned at the helm of the Jordanian telecom industry with state-of-the-art future proof 2.75G, fully ready for migration to 3G technology. Only a year since its launch, Umniah captured an impressive market share of approximately 14%. By the end of the first quarter of 2008, Umniah's customer base had reached an unprecedented number of over 1,300,000 subscribers in less than 3 years. Since its launch in 2005, Umniah was able to expand the Jordanian mobile market penetration rate from 26% to over 80% proving that it is a key player in the most competitive telecommunications market among Arab states. Umniah mission is to provide high quality customer-centric telecommunication services through superior management, better value propositions, and advanced technology, thereby maximizing our stakeholders' value.

In line with its ongoing efforts towards enhancing its competitive advantage and providing advanced, content-rich and customer-centric services, Umniah has proven to be a pioneer in the development of comprehensive telecom services that meet the dynamic needs of its customers, providing them with cutting-edge and innovative technology.

Chapter three

Methodology

3.1 Introduction

Over the past two decades, tremendous improvements in computerization and data base storage and management have arisen; many organizations nowadays own significant amounts of data regarding their customer profile and transactions that influences researches in the market.

The availability of such information source affected the design of this research, focusing more on the awareness and attitudes rather than behaviors.

Leading to identifying the appropriate data sources, made the researcher aware of the combinations of both broad types of information required and the objectives of the research obtained.

As a result the appropriate research method is the exploratory research, through which the researcher will be able to develop initial ideas of the subject of the study and focus on investigating a situation that involves a minimum expenditures of cost and time.

Through the exploratory research the researcher will be able to define the problem more precisely, beside the identification of action before reaching the part of confirmed findings, through the use of conclusive design.

Initial stage of the research will cover the exploratory research by narrowing the scope of the research topic, transforming the discovered problems into defined one's, incorporating specific research objectives and hypothesis.

The exploratory research covers the secondary data analysis, by conducting qualitative interviews and quantitative survey methods. The use of these techniques develops clearly the concepts of the research, operational definitions and improvements of the final research design that leads to achieving the research objectives and hypothesis.

The exploratory research design is influenced by the research creativity and ingenuity nature, beside the sector operating in, used for the purpose of identifying and exploring the developments of products/services, through forms of identifying the factors affecting customer attrition leading to achieving desired objectives and hypothesis.

3.2 Research Hypotheses

Null hypothesis no. 1: There is no statistically significant relationship between technology factors (Handset, Feature, and Network technology) and customer attrition. ($\alpha \leq 0.05$)

Null hypothesis no. 2: There is no statistically significant relationship between economical factors (Tariff type, Activation process, and Subscription fees) and customer attrition. ($\alpha \leq 0.05$)

Null hypothesis no. 3: There is no statistically significant relationship between social factors (Image, Experimenting, and Closed groups) and customer attrition. ($\alpha \leq 0.05$)

Null hypothesis no. 4: There is no statistically significant relationship between quality factors (Coverage, Call Quality, Customer service and Billing) and customer attrition. ($\alpha \leq 0.05$)

Null hypothesis no. 5: There is no statistically significant difference in attrition as a result of technological, economical, quality, and social factors which can be attributed to demographic factors (Gender, age, income, residency). ($\alpha \leq 0.05$)

A hypothesis can be defined as an assumption or a proposition that a researcher makes about some characteristics of the population being investigated (Wilson, 2003).

In this research, null hypothesis have been adopted, that is the statement of the status quo, where no difference or effect is expected, and it is tested through six stages as follows (Donald R. Cooper, Pamela S. Schindler, 2003):

1. State the null hypothesis: using the null hypothesis for statistical testing purpose.
2. Choose the statistical test: there are many tests from which to choose, the power of the test efficiency is determined according to the sample drawn, nature of the population and the type of the measurement scale, for this research, the t-test and simple regression was chosen for its usage in large samples with a sample size more than 30, in the t-test , the estimated standard error of the mean will be calculated using the following formula:

   Standard error = standard deviation / √Sample size

   Afterwards, the t value will be calculated using the following formula:

   t = Observed proportion-proportion under null hypothesis/estimated standard error
3. Obtain the critical test value: after calculating the t value, the critical value will be taken from the appropriate table for that distribution; the critical value is the criteria that define the region of rejection from the region of acceptance of the null hypothesis.
4. Interpret the test: if the calculated value is larger than the critical value, the hypothesis will be rejected and that it has no means proved, if the critical value is larger, then the research have failed to reject the null hypothesis.

3.3 Theoretical Framework

Figure [3.1] below represents the theoretical framework developed by the researcher based on the literature review.

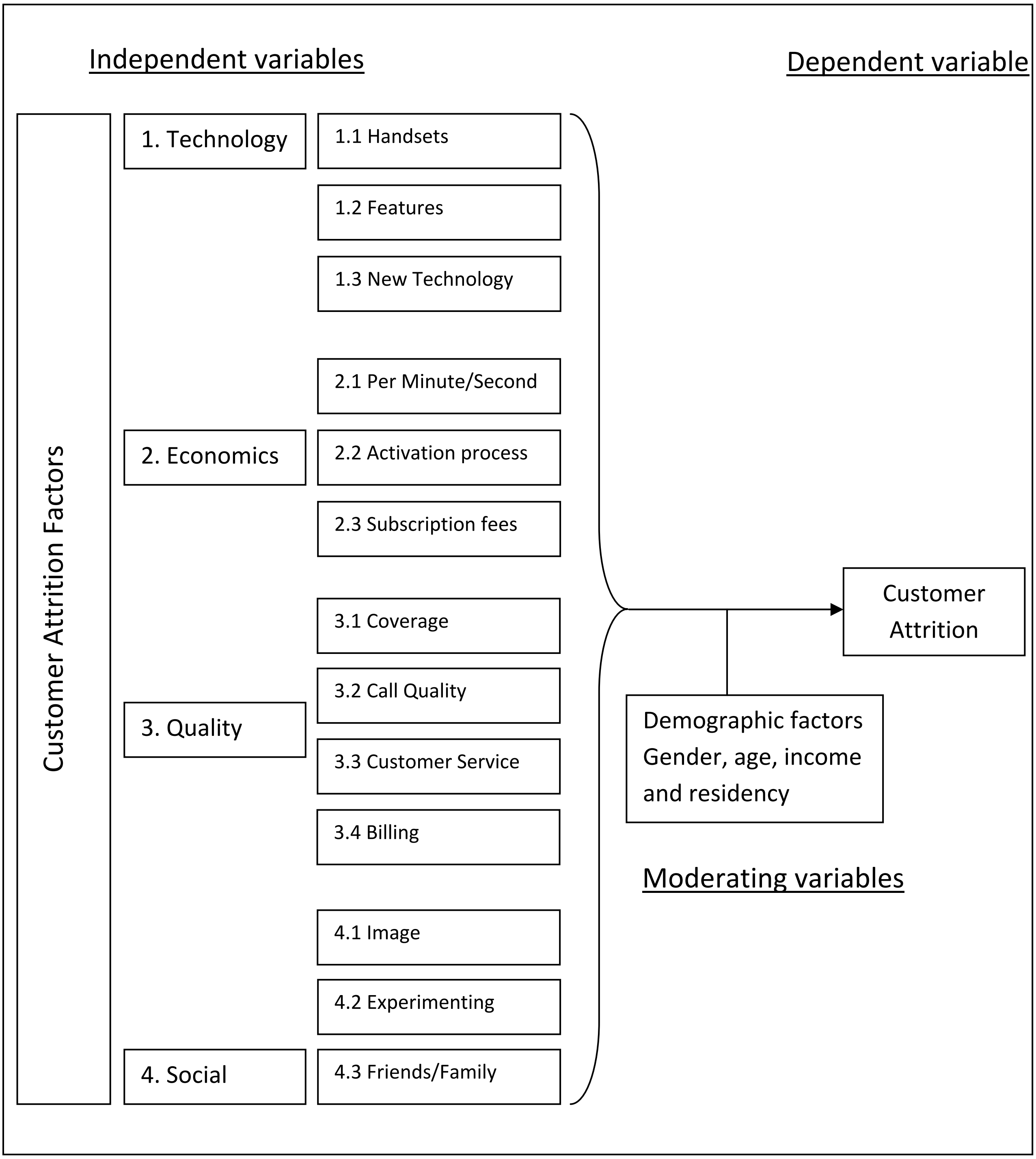


Figure [3.1] Telecom Attrition theoretical framework

3.4 Variables Operationalization and Measurement

Dependent Variable

Customer attrition: Attrition is a term used to describe customer or employee turnover, and it is measured by the number of customers who discontinue a service or employees who leave a company during a specified time period.

This variable was measured by identifying the probability of a certain idle customer to abandon the service provided by the company (Mattison, Rob, 2005) (Measured by question 21 in the questionnaire).

Independent variables

1- Technological variables: Identifying handset types, models, and network technology currently used will help to assess the role that technology plays in customer attrition; technology-based variables can be divided into the following three major categories (Mattison, Rob, 2005): (Measured by questions 8-10 in the questionnaire respectively).

a) Handset: The part of the telephone that contains the speaker and the microphone. On a desktop phone, the part being hold in the hand is the handset. On a cell phone, the entire phone is the handset.

   With regard to this type, customers decide that their handset is not new enough, doesn't have the latest technology, or the current service provider doesn't support the latest technology, and that the easiest way to get a newer handset or use their current one with the latest technology, is to simply change carrier.

b) Feature: A characteristic in the mobile technology that enhance the customer usage of the mobile service.

In this situation the customer discovers that there are new features available from a competitor and then switches carrier to gain access to them.

c) Network Technology: A new invention or a new enhanced generation of mobile application, feature or handset that serve improved and more facilitated functions.

   It occurs when alternative, newer network technologies enter the market and consumers are offered the opportunity to upgrade to them.

2- Economical variables: Despite the continuous efforts a mobile service provider makes to present their companies as unique and their offers as interesting, the resounding number-one reason for customer attrition mentioned by consumers is always price. Since customers are price sensitive, service providers must respond to price pressure from their competitors.

Collecting information about customer’s mobile service tariffs and subscription fees will provide a great tool in measuring customer attrition (Mattison, Rob, 2005) (Measured by questions 11-13 in the questionnaire respectively).

a) Per Minute/Second: Charge fees for mobile calls are defined on minute level or second level.

   The basic form for this type is when the consumer changes mobile service provider to get a better per-unit charge rate.

b) Activation process: The process in which the subscriber obtain a mobile service, choose a certain type of tariffs and finally start using the service.

   It happened when the customer switches provider because the competitor eliminates or discounts the activation fees

c) Subscription fees: Payments charged in exchange for mobile services, it could be daily, weekly, monthly or annually.

It occurs when a consumer prefers the plan rate offered by one competitor over another.

3- Quality variables: Although price is the number-one reason customer switches mobile provider, quality is the second most common reason. The wireless industry is, after all, a service industry, and the quality of the service is what people are buying.

Acquiring the customer‘s experiences in call quality, coverage density, billing, or customer service has a significant influence in the relationship between service quality and measuring customer attrition (Mattison, Rob, 2005) (Measured by questions 14-17 in the questionnaire respectively).

a) Coverage: The coverage of a cellular station is the geographic area where the station can communicate; it is usually used to indicate if the mobile have enough signal strength to make calls transactions.

It occurs if the mobile phone doesn’t work in certain locations; the customer will get upset and look for a new provider with a more convenient coverage.

b) Call Quality: A characteristic property that defines the voice clarity and uninterrupted calls during the service.

In this type, if the client repeatedly encountered dropped calls and had problems getting connected or heard on the phone, the consumer will probably start searching for a more stable provider.

c) Customer service: Service and assistance provided by the company to customers who purchase or use its products.

The lack of customer service is considered the biggest customers complaints about a carrier.

d) Billing: The process of charging the customer with amounts in exchange for mobile services.

Major billing system problems include inaccurate bills and bills that are late. Either of these will make the customer very unhappy very quickly, especially if it is a recurring problem.

4- Social variables: Characterize or reflect ways in which individuals are related to each other in groups, social pressures can cause a person to drop a carrier and switch to one that is more socially acceptable.

Gathering the social experience that the customers encounter in using or trying to use the same mobile service, is essential to estimate the social variable role in measuring customer attrition (Mattison, Rob, 2005) (Measured by questions 18-20 in the questionnaire respectively).

a) Image: Is a word commonly used to describe reputation, esteem or prestige.

The image projected by the company can clash with the self-image of the consumer. In these cases, consumers will switch to a company with an image more in line with their own.

b) Experimenting: An attempt by subscribers to discover, test or try a new service.

In this type, some consumers simply have a need to try new things. These consumers will switch carriers just to see what the other service is like and to give themselves a basis for comparison.

c) Friends/Family: The strongest of the social factors is the friends and family issue. People will often change the decisions they have made based on pressure from these groups.

3.5 Sample Design

1. Sampling plan:

The basic idea of sampling is that by selecting some of the elements in a population, a conclusion about the entire population is drawn (Cooper, Schindler 2003)

The sampling plan of the research process, starts with defining the population of interest, selecting the sampling frame, sampling method, determining the sample size and finally implementing the sampling procedure that focused on the quality individuals, who are willing to open up and be creative, reveal sensitive thoughts and behaviors.

2. The population of interest:

Reflecting the target audience or potential target market for the product/ service being researched.

The target populations are the customers who are idle and about to leave the company services.

3. Sampling Frame:

A list of employees working in the private and public sector was collected, as well as students from private and public universities ages for both sectors 20-40 years old.

4. Sampling methods:

A large proportion of marketing studies use non-probability sampling method being executed more quickly and easily than probability sampling, was adopted for the following reasons (Wilson, 2003):

1. The cost is significantly less than the probability samples to undertake.
2. The less stringent procedures required in potential respondent selection mean that they could be conducted reasonably quickly.
3. Small sizes tend to be smaller to handle.
4. The research can target the most important respondent.

The types of non-probability sampling methods were adopted as follows:

1. Judgment sampling, is particularly appropriate were sample size is smaller (Wilson, 2003), using this method the researcher consciously selects a sample that is considered appropriate for the research study depending on his judgment (Wilson, 2003).
2. Judgmental samples involve the deliberate choice of each sample member.
3. Sample size:

About 2,000 customers quits Umniah services every week, A total of 100 respondents from a random sample of all idle Umniah subscribers (idle subscribers are subscribers who didn't use their mobile service for 3 months or more) in the first week of Mar-2011, 338 call attempts were made to collect primary data, beside four in-depth interviews with experts in the field (Appendix B).

3.6 Research Objectives

The research objectives are the bias for judging the reminder of the research and the final report, the consistency of the research is measured by the objectives to be achieved through checking to see that the objectives is discussed in the research design, data analysis and results section are:

1. To identify factors affecting customer attrition in Umniah in the Jordanian telecommunication market.
2. To measure the effect of those factors on customer attrition.
3. To propose suggestions and recommendations that can be used to minimize customer attrition in Umniah.

3.7 Research process

3.7.1 Problem Definition (Statement of the Research Objectives)

The first step in the research process is the problem definition stage, which is the most important stage, knowing what is to be accomplished determines the research process, the problem definitions stage is formulated in the business area decision, that is clarified through answering some research questions, based on the research experience and personal observations about the subject area in Jordanian market, in-depth interviews with five marketing managers in the telecommunication sector, through the use of unstructured interviews identifying the specific components of the research problem and its relationship with their daily business needs.

Furthermore, a search pattern illustrated in figure [3.2] on next page, was created to facilitate the literature review and secondary data analysis were performed, three

specific components of marketing research problems were identified and refined into three research objectives needs to be achieved by the current research.

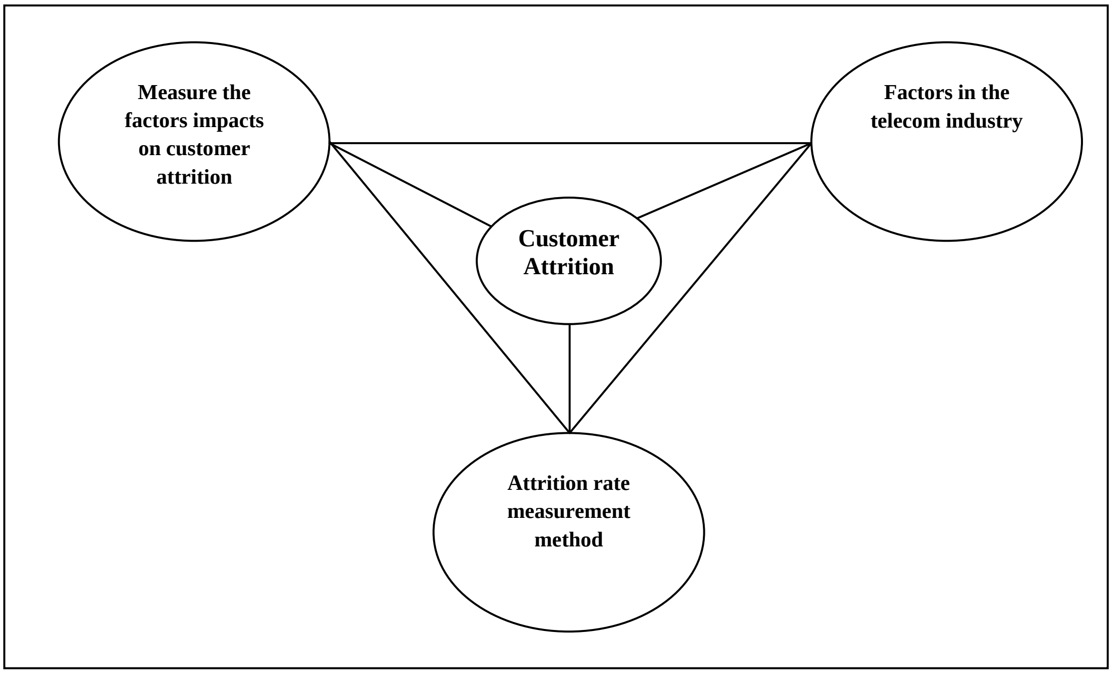


Figure [3.2] Search pattern

3.7.2 Research Design Formulation

The selection of the research process was dependent upon several facts, first, the limited knowledge of the subject area in the Jordanian market. Second, the nature of the research of being exploratory provides the main purpose of the research. Third, samples are small and information needs are defined in the research primary questions, and finally the usage of the data mining in the telecom companies, a data mining techniques will be discussed to process the raw data of customers CDRs (Call Details record) database, aggregate values related to factors introduced by the hypothesis and contrive patterns that can be used for customer attrition prediction that meets the research objectives.

After formulating the research problem, the research design was developed, including the objectives of the research to make sure that the information collected is appropriate for achieving research objectives through the results analysis.

The research design was covered through the methods of exploratory research, using a case study research strategy to develop a clear vision and knowledge about the subject area, the methods are:

1. Secondary data analysis (Qualitative Technique) :

   Secondary data will be gathered from telecommunication and regulation commission in the Jordanian market, reports and publications prepared by others, magazines and books in the field of telecommunication that will lead to set proper strategies to meet the desired objectives, regarding intentions and customers behavior toward the area of study.

   The secondary data analysis step helps in diagnosing the research problem, developing a sampling plan, formulating an appropriate research design and validating a qualitative research finding, comparing findings with objectives and hypothesis set and looking into the data mining information collected in consideration.

2. Survey (Quantitative Technique):

   Primary data is gathered by conducting phone calls to gather information from a sample of customers who are idle and are potential customers to abandon the company service, through the use of a designed and tested questionnaire.

3. Individual In-depth interviews (Qualitative technique):

   Face to face interviews that are conducted in an unstructured and flexible approach, focusing on the subject matter of the interview, developing a deep understanding of consumer attitudes and reasons behind such a behavior.

4. Data Mining (Forecasting technique):

   The data mining is the process of selecting, exploring and modeling a large amount of data for the purpose of revealing the vague relationships and patterns of behavior, with complex databases, making it difficult for managers to think up all of the possible hypotheses and questions testing the data to look for patterns and relationships.

   Data mining is being applied through software that uses probabilities and statistics, determine the relationships that are least likely to have occurred by chance and can be considered as being significant (Wilson, 2003).

   The use of computer software digs through, volumes of data to understand patterns between customers, products and companies activities, such a term is applied in many forms of analysis. (Zikmund, 2000)

   In data mining the software used is relatively expensive and requires sophisticated resources to apply, that is why companies like DataMind, IBM, Oracle, Information Builders and Acxiom Corporation offers data mining services, by which customers send their data bases to be analyzed and let the data mining company do the ‘numbers crunching’ work.

   The main disadvantage with data mining technique beside the cost, that it can waste time than it saves, distracting attention by highlighting patterns having no

commercial relevance, as a result managers should be careful in determining which patterns to investigate further and which to discard. (Kadak, 2007)

3.7.3 Questionnaire Design:

In survey research, the questionnaire is the research instrument designed to generate the data, for achieving the project research objectives. Questionnaires provide the critical communication link between the research and the respondent (Wilson, 2003). Trying to reduce the distortion in the two-way communication for each party to be able to understand what the other is saying.

A fully structured questionnaire has been developed, to meet the research objectives. Relying on Likert scale, a commonly used scaling approaches developed by Renis Likert in 1932, involving respondents being asked to state their level of agreement with a series of statements about the product, organization or concept. The scores are then totaled to measure the respondent's attitude (Wilson, 2003).

With Likert scale, respondents indicates their attitudes by checking how strongly they agree or disagree with well constructed statements (Zikmund, 2000).

A number of statements vary from study to another, depends on the number of characteristics that are relevant to the subject under study. The respondent indicates agreement by selecting one of the following descriptors: strongly agree, agree, neither agree or disagree, disagree, strongly disagree.

The overall value of the Likert scale depends on the care with which the statements making up the scale are selected (Wilson, 2003).

The Likert scale is mostly used by summated rating scales, that consists of statements expressing a factorable or an unfavorable attitude toward the subject of interest (Cooper, Schindler, 2003), the respondents are asked to agree or disagree with each statement, then each respondent is given a numerical score to reflecting its degree of favorable attitudes, afterword's scores are totaled to measure respondent's attitude.

Likert scales help in comparing one person's score with the distribution of scores from a well defined sample group and produces interval data (Cooper, Schindler, 2003).

Therefore a disadvantage of Likert scale summated rating method is its difficulty to know what a single summated score means, many patterns responses to various statements producing the same total score, although identical total scores might reflect various attitudes generated from various combinations of statements endorsed. Despite such a disadvantage, Likert scale is one of the popular and reliable methods for measuring attitudes because the method is simple and considered time and cost efficient as well.

In this research, a 14 statements Likert scale questionnaire was developed with a five point scale (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) with points value (5, 4, 3, 2, and 1) respectively, the statements are designed to meet the research objectives and reveal attitudes and believes about the study of the research. (See appendix A)

3.7.4 Pre-Testing

After designing the questionnaire and before distributing it to respondents, to avoid any misunderstood questions, skipping a series of questions, or misinterpreted the instructions for filling out the questionnaire, a pretesting was conducted.

Draft of the questionnaire was distributed on respondents from the sampling frame. The process of pre-testing showed the following:

- Adding demographics questions to the questionnaire.
- Adding 5 scale answers to the questionnaire instead of three, giving more accuracy to the research and the objectives to be reached.
- Statement No. 14 in the questionnaire was similar to statement no. 15, which needed rephrasing to correct it and avoid repetition.
- Interview questions should be changed into open-end instead of close end questions.
- To change the place of the interview particulars to be moved to the beginning of the interview form instead of the end of it.

After implementing the suggestions from pre-testing, final layout of the questionnaire was used in starting the primary data collection process (Appendix A).

3.8 Data Collection

In this phase, based upon the sample frame design and the researcher's judgment, the target audiences for the In-depth interviews were selected, four specialized professionals operating in the telecommunication sector. To obtain the desired objectives from each interview, experts were given prior notifications about the nature of the research and objectives of it over the phone, using an unstructured and flexible approach during the interview, nevertheless two out of four respondents have been interviewed and were able to complete the interviews, leaving a response rate of (%50), the main reasons not complete the interviews were:

1. Lack of time because of tight business agenda.
2. Refusing to corporate and give information.

The interview schedule includes the following:

- Introducing the interviewer, research topic and the importance of his/ her experience to the research.
- Interviewer use of the knowledge in the research objectives, nature of the study and how interviewing the respondent will benefit the research.
- The comments of the respondent to select which parts of the dialogue with the respondent to be explored in the interview documentation.
- Assuring the respondent that information will be dealt with for academic purposes only.
- Inform the respondent to speak in any language of his/her preference and to interrupt any time for any clarifications.
- Thanking the respondent and express appreciation for their help.

What stimulate the respondent to respond to conducting In-depth interview, were the importance of the subject to some of them(customer attrition), as for others they want to help for academic purposes to support the research, and benefiting from their experiences , knowing that results from such a research will benefit governmental regulatory and most importantly adding value to companies operating in the telecommunication field, to get more attention and better service when results of the research.

The interviews took 1 hour long each, depending on the interviewee and his time available, after finishing the interviews, the following steps were followed:

- Data assembly from notes taken during interview and rearranging the answers properly.
- Filtering and structuring the data by sorting and focusing on the relevant data and eliminate the irrelevant data.

- Analyzing close-end questions in the interview by counting the alternatives that each respondent chose to speak of.

As for quantitative techniques, a questionnaire was designed and filled by the researcher, 383 calls were made to collect 100 successful calls and completed answers.

Finally, the researcher looked for publications and previous researches related to this research, in addition to success stories about the same topic of this research; the following publications and previous researches were found:

- A dissertation under the title of '*Measuring the Impact of Organizational Culture Factors on Knowledge Management Implementation in the Jordanian Telecommunication Group (Orang)*': Case Study by Sami Abdallah Al Madaan, 2008.
- A dissertation under the title of '*Advanced Technology in Informnation Systems'*: A Case Study in Telecommunication Sector by Sohair Abdallateef Baqleh, 2006.
- A dissertation under the title of '*The Impact of Information Technology on Consumer Satisfaction'*: A case study at the HSBC Bank Middle East Jordan by Rami Sami Tarazi, April 2001.
- A dissertation under the title of '*Information Systems in Jordan Telecommunication Company at the Northern Region of Jordan'* A Case Study by Anwar Eid Haddad, January 1999.
- A dissertation under the title of '*The Effect of Service Quality on Consumer Satisfaction of the Jordan Telecom Group'* A Field Study by Omar Mohammad Rouf Mahmoud Hayajneh, 2008.
- A dissertation under the title of '*Developing a Model for Measuring Customer's Satisfaction and Loyalty in the Jordanian Mobile Phones Companies'* by Emad Yousef Qasem Masoud, August 2007.

3.9 Limitations

- Judgmental sampling does not allow any generalization concerning the meaning of the data to other sample groups and high level of interview subjectivity.
- Low-rate of responses when collecting questionnaires answers through mobile calls.
- Lack of previous researches related to the subject of the study beside publications and reports covering the topic in Jordan.
- Respondents were not co-operating when setting interviews appointments, because of my position in Umniah they saw me as a competitor which limited me in gathering more information through interviews.
- When customers churn, it is unlikely that they tell the real reason for their leaving. People may be embarrassed by their real reasons, or may not want to hurt the feelings of the company employee or interviewer.

Chapter four

Analysis & Results

4.1 Study Analysis

This chapter deals with analyzing the qualitative and quantitative data gathered in the previous chapter, explaining the techniques used in analyzing data gathered and mainly explaining the results of each data gathered and revealing the results, and their relationship with the research objectives.

4.2 Introduction

The study aims at identifying the opinions of the study sample of the determinants of customer attrition of Umniah mobile company, and to achieve this, closed-ended questionnaire was developed to review the opinions of the study sample.

After questionnaires were distribution Answers were coded into S.P.S.S program, then appropriate statistical analysis was adopted to test the study hypotheses.

4.3 Statistical Analysis

The characteristics of study subjects were described using means, and frequency distribution. Categorical variables were described by frequencies and percentages, relations were described using T-Test, one-way Anova, simple and multiple regression.

4.4 Reliability

Cronbach's Alpha used as a Reliability test, it reaches 85% for all statements which is good percentage value since it is more than excepted value 60%.

Table [4.1] on next page lists the values of Cronbach's Alpha for each factor.

Factor	Cronbach's Alpha value
Technological Factors	% 69.5
Economical cal Factors	% 83.7
Quality Factors	% 92.1
Social Factors	% 82.9

Table 4.1 Cronbach's Alpha values for all factors

4.5 The Demographical and other Properties

1. Gender:

Gender	Frequency	Percent
Male	58	58
Female	42	42
Total	100	100

Table 4.2 Distribution of the sample according to Gender

Table [4.2] above shows that males were more than females. They were (58) with a (58%). females were (42) with a (42%).

This result states that males and female both are customers in telecommunication companies at nearly the same percentage.

2. Age:

Age	Frequency	Percent
Less than 25	32	32.0
25-39	20	20.0
40-45	34	34.0

55 or more	14	14.0
Total	100	100.0

Table 4.3 Distribution of the sample according to Age

Table [4.3] on previous page shows that:

- (32%) of the sample less than 25 years old.
- (20%) of the sample 25-39 years old.
- (34%) of the sample 40-45 years old.
- (14%) of the sample 55 years old and more.

3. Level of education:

Level of education	Frequency	Percent
High school	20	20
diploma	7	7
BA	69	69
master	4	4
Total	100	100

Table 4.4 Distribution of the sample according to level of education

As we notice from the table [4.4] above, the majority of the samples were bachelors degree holders (67%), (%20) were at high school level, (%7) were at diploma level, %4 at the master educational level.

4. Income:

Job Title	Frequency	Percent
Less than 300	27	27
Between 300-600	22	22
Between 600-1000	17	17

More than 1000	34	34
Total	100	100.0

Table 4.5 Distribution of the sample according to income

The table [4.5] shows that the first category is %34 of the samples were at income level 1000 JOD and more, next income category is Less than 300 JOD were next in the rate of (%27) of the sample, Between 300-600 JOD was (%22) and the last category 600-1000 was (%17) of the sample.

5. Residency:

Residency	**Frequency**	**Percent**
Zarqa	40	40
Irbid	26	26
Amman	34	34
Total	100	100.0

Table 4.6 Distribution of the sample according to residency

The table [4.6] shows that (%40) of the samples lives in Zarqa, (%34) lives in Amman, (%26) lives in Irbid.

6. How long have you been an Umniah customer?

Customer subscription period	**Frequency**	**Percent**
Less than one year	29	29
2-4 years	25	25
More than 5 years	46	46
Total	100	100

Table 4.7 Distribution of the sample according to customer subscription period

The table [4.7] shows that (%29) of the samples have been subscribers of Umniah for less than one years, (%25) for 2-4 years, (%46) were more than 5 years Umniah customer.

7. How many mobile subscriptions do you have?

Number of mobile subscriptions	Frequency	Percent
One line	23	23
Two lines	22	22
Three lines	55	55
Total	100	100

Table 4.8 Distribution of the sample according to Number of mobile subscriptions

The table [4.8] above shows that (%23) of the samples have one line, (%22) have 2 lines, while (%55) of the samples have three lines.

4.6 Study outcomes

Descriptive Statistics:

Mean and Standard Deviation were calculated and arranged by the most important statement to the less, Depending on means in the table [4.9] below.

Statement. No.	Statement	mean	St. Deviation	Importance
12	Registering your subscription and start using Umniah mobile service was a worry-free and easy process	4.23	0.885974	high
13	Umniah provides customers with many types of mobile service packages with various subscription fees ranges	4.18	0.821184	high
11	Umniah per second calls tariff is a money saver	4.17	0.910711	high

10	Umniah service generation version is sufficient for my need	3.95	0.914253	high
9	I am capable of using all the features of my mobile while using Umniah service	3.55	1.038404	high
8	I could use all types of mobiles while using Umniah service.	3.48	0.915412	moderate
14	Umniah network coverage map covers all the areas I used the mobile service in	3.41	1.083345	moderate
18	Umniah entered the market with a unique look and feel. Its distinguished and vibrant identity not only broke through the clutter but reflected on the fresh approach that came along with the brand	3.05	1.067187	moderate
19	Umniah is a pioneer in the development of new services to meet the dynamic needs of its customers	3	1.13707	moderate
17	Umniah competitive billing services excel by meeting the all you needs	2.95	1.209182	Low
20	Many of my family and/or friends are using services provided by Umniah	2.87	1.106957	Low
15	Umniah Call quality is always a voice clarity and uninterrupted calls service	2.85	1.018763	Low
16	Umniah customer services and call centre are to provide innovative, high quality service to its customers at all times	2.83	1.054619	Low
	Total	3.424615	1.012543	medium

Table 4.9 Mean and Standard Deviation calculation

The table [4.9] above indicates that statements (12, 13, 11) were the most important statements, the 'mean' of each of them was more than (4.00) which means that there is a great acceptance for these statements which states that (Registering your subscription and start using Umniah mobile service was a worry-free and easy process, Umniah provides customers with many types of mobile service packages with various

subscription fees ranges, Umniah per second calls tariff is a money saver), these statements get a rate of strongly agree.

Statements (10, 9) that state (Umniah service generation version is sufficient for my need, I am capable of using all the features of my mobile while using Umniah service) were in the second rate of acceptance, the 'mean' of each of them was more than (3.500) and lower than (4.00), that means the samples agree about it.

Statements (8, 14, 18, 19) that state (I could use all types of mobiles while using Umniah service, Umniah network coverage map covers all the areas I used the mobile service in, Umniah entered the market with a unique look and feel. Its distinguished and vibrant identity not only broke through the clutter but reflected on the fresh approach that came along with the brand, Umniah is a pioneer in the development of new services to meet the dynamic needs of its customers) were in the third rate of medium acceptance, the 'mean' of each of them was more than (3.00) and lower than (3.500) that means the samples disagree about it.

The rest of questionnaire statements were in low rate, the mean of each of them was (less than 3.00) that means that the sample disagree about them.

4.7 One Sample T-Test

One sample T-test was used to examine the mean difference between the sample and the population mean. We draw a random sample from the population and then compare the sample mean with the population mean and make a statistical

decision as to whether or not the sample mean is different from the population, as explained in table [4.10] o next page.

Factor	Mean	T	Sig.	Result
Technological Factors	3.660	2.119	0.037	Sample is harmonious with assumed general acceptance level for population
Economical Factors	4.1933	9.143	0.000	Sample is harmonious with assumed general acceptance level for population
Social Factors	3.0500	-4.217	0.000	Sample is not harmonious with assumed general acceptance level for population
Quality Factors	3.0300	-4.829	0.000	Sample is not harmonious with assumed general acceptance level for population

Table 4.10 One Sample T-Test for technology, economic, social, and quality factors

Having the mean of technology factors (3.660), positive calculated T-value (2.119) and the significant level (0.037), so the sample shows a significant accept about technology adapted by Umniah.

The same applies for the economic factors, since the mean is (4.1933), positive calculated T-value (9.143) and the significant level (0.000).

But as for the social factors, the mean is (3.0500), negative calculated T-value (-4.217) and the significant level (0.000), which indicates that there is a negative trend by sample towards the social factors in using Umniah services,

The same negative trend is obvious in the quality factors, the mean is (3.0300), negative calculated T-value (-4.829) and the significant level (0.000),

4.8 Hypothesis testing

- Hypothesis 1:

Null hypothesis no. 1: There is no statistically significant relationship between technological factors (Handset, Feature, and Network technology) and customer attrition. ($\alpha \leq 0.05$)

Statement no. 8 'I could use all types of mobiles while using Umniah service', Statement no. 9 'I am capable of using all the features of my mobile while using Umniah service' and Statement no. 10 'Umniah service generation version is sufficient for my need' in the questionnaire represents the technology factor.

Simple regression test was used to test the hypothesis at alpha of (0.05). The following results were achieved:

	Sig.	F	R	R square
H1	0.521	0.416	0.065	0.004

Table 4.11 Simple regression test of hypothesis number 1

The table [4.11] above indicates that the calculated F-value was (0.416), R-value (0.065), R square value (0.004), significant level was (0.521) which is higher than the significant level ($\alpha \leq 0.05$) so we fail to reject the null hypotheses and say that there is no statistically significant

relationship between technological factors and customer attrition. (α≤0.05)

- Hypothesis 2:

Null hypothesis no. 2: There is no statistically significant relationship between economical factors (Tariff type, Activation process, and Subscription fees) and customer attrition. (α≤0.05)

Statement no. 11 'Umniah per second calls tariff is a money saver', Statement no. 12 'Registering your subscription and start using Umniah mobile service was a worry-free and easy process' and Statement no. 13 'Umniah provides customers with many types of mobile service packages with various subscription fees ranges' in the questionnaire represents the economical factor.

Simple regression test was used to test the hypothesis at alpha of (0.05). The following results were achieved:

	Sig.	F	R	R square
H2	0.158	2.029	0.142	0.020

Table 4.12 Simple regression test of hypothesis number 2

The table [4.12] above indicates that the calculated F-value was (2.029), R-value (0.142), R square value (0.020), significant level was (0.158) which is higher than the significant level (α≤0.05) so we fail to reject the

null hypotheses and say that there is no statistically significant relationship between economical factors and customer attrition. (α≤0.05)

- Hypothesis 3:

Null hypothesis no. 3: There is no statistically significant relationship between social factors (Image, Experimenting, and Closed groups) and customer attrition. (α≤0.05)

Statement no. 14 'Umniah network coverage map covers all the areas I used the mobile service in', Statement no. 15 'Umniah Call quality is always a voice clarity and uninterrupted calls service', Statement no. 16 'Umniah customer services and call centre are to provide innovative, high quality service to its customers at all times' and Statement no. 17 'Umniah competitive billing services excel by meeting the all you needs' in the questionnaire represents the social factor.

Simple regression test was used to explain the hypothesis at alpha of (0.05). The following results were achieved:

	Sig.	F	R	R square
H3	0.000	207.724	0.824	0.679

Table 4.13 Simple regression test of hypothesis number 3

The table [4.13] above indicates that the calculated F-value was (207.724), R-value (0.824), R square value (0.679), significant level was (0.000) which is lower than the significant level (α≤0.05) so we reject the null hypotheses and accept the alternative, and say that there is a statistically significant relationship between social factors and customer attrition. (α≤0.05)

- Hypothesis 4:

Null hypothesis no. 4: There is no statistically significant relationship between quality factors (Coverage, Call Quality, Customer service and Billing) and customer attrition. (α≤0.05)

Statement no. 18 'Umniah entered the market with a unique look and feel. Its distinguished and vibrant identity not only broke through the clutter but reflected on the fresh approach that came along with the brand', Statement no. 19 'Umniah is a pioneer in the development of new services to meet the dynamic needs of its customers' and Statement no. 20 'Many of my family and/or friends are using services provided by Umniah' in the questionnaire represents the quality factor.

Simple regression test was used to explain the hypothesis at confidence level of (0.05) the following results were achieved:

	Sig.	F	R	R square
H4	0.000	150.840	0.779	0.606

Table 4.14 Simple regression test of hypothesis number 4

The table [4.14] above indicates that the calculated F-value was (150.840), R-value (0.779), R square value (0.606), significant level was

(0.000) which is lower than the significant level (α≤0.05) so we reject the null hypotheses and accept the alternative, and say that there is a statistically significant relationship between quality factors and customer attrition. (α≤0.05)

Multi regression test was used to learn more about the relationship between several independent variables and a dependent within the same independent type category, the results was as follows:

1- Technological factors:

Sub categories	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.408	.516		4.670	.000
Handset	.233	.210	.226	1.111	.269
Feature	-.166	.186	-.183	-.892	.375
Network technology	.064	.107	.061	.592	.555

Table 4.15 Multi regression test of the technological factors

The table [4.15] above indicates that the significant levels for the technological factors (Handset, Feature, and Network technology) were (0.269, 0.375, and 0.555) respectively, which are higher than the significant level (α≤0.05), so there are no statistically significant relationships between (Handset, Feature, and Network technology) and customer attrition (α≤0.05), and according to the Beta values, the factors importance order is 'Handset' (Most important), then 'Network technology' and then 'Feature' (Least important).

2- Economical Factors:

Sub categories	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.477	.602		4.115	.000
Tariff type	-.195	.201	-.187	-.967	.336
Activation process	.444	.307	.416	1.448	.151
Subscription fees	-.159	.228	-.138	-.698	.487

Table 4.16 Multi regression test of the economical factors

The table [4.16] on the previous page indicates that the significant levels for the economical factors (Tariff type, Activation process, and Subscription fees) were (0.336, 0.151, and 0.487) respectively, which are higher than the significant level (α≤0.05), so there are no statistically significant relationships between (Tariff type, Activation process, and Subscription fees) and customer attrition (α≤0.05) and according to the Beta values, the factors importance order is 'Activation process' (Most important), then 'Subscription fees' and then 'Tariff type' (Least important).

3- Social Factors:

Sub categories	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.486	.173		2.805	.006
Image	.591	.070	.667	8.420	.000
Experimenting	.048	.059	.058	.817	.416
Closed groups	.155	.073	.182	2.132	.036

Table 4.17 Multi regression test of the social factors

The table [4.17] indicates that following:

- According to the Beta values, the order of the factors importance is: the 'Image' factor (Most important) then, the 'Closed Groups' factor, and then the 'Experimenting' factor (Least important).

- The significant levels for the Social factor (Experimenting) was (0.416), which is higher than the significant level (α≤0.05), so there is no statistically significant relationship between Experimenting and customer attrition. (α≤0.05)
- The significant levels for the Social factors (Image and Closed groups) were (0.000, and 0.036) respectively, which are lower than the significant level (α≤0.05), so there are statistically significant relationships between (Image and Closed groups) and customer attrition. (α≤0.05)

4- Quality Factors:

Sub categories	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.595	.200		2.979	.004
Coverage	.157	.114	.180	1.383	.170
Call Quality	.337	.118	.363	2.863	.005
Customer service	.193	.105	.215	1.844	.068
Billing	.083	.085	.106	.971	.334

Table 4.18 Multi regression test of the quality factors

The table [4.18] indicates that following:

- According to the Beta values, the order of the factors importance is: the 'Call Quality' factor (Most important), then the 'Customer service' factor, then the 'Coverage' factor, and then the 'Billing factor (Least important).
- The significant levels for the Quality factors (Coverage, Customer service and Billing) were (0.170, 0.068, and 0.334) respectively, which are higher than the significant level (α≤0.05), so there are no statistically significant relationships between

(Coverage, Customer service and Billing) and customer attrition. (α≤0.05)

- The significant levels for the Quality factor (Call Quality) was (0.005), which is lower than the significant level (α≤0.05), so there is statistically significant relationship between Call Quality and customer attrition. (α≤0.05)

- Hypothesis 5:

Null hypothesis no. 5: There is no statistically significant difference in attrition as a result of technological, economical, quality, and social factors which can be attributed to demographic factors (Gender, age, income, residency). (α≤0.05)

To test this hypothesis, ONE WAY ANOVA was used to find out if there is a statistically significant difference (α≤0.05) in attrition which can be attributed to each of the following demographic factors:

1. Gender:

Gender		Sum of Squares	df	Mean Square	F	Sig.
Technology	Between Groups	7.789226	1	7.789226	15.69	0.000
	Within Groups	48.65077	98	0.496436		
	Total	56.44	99			
Economy	Between Groups	0.390466	1	0.390466	0.676	0.412
	Within Groups	56.53842	98	0.576923		
	Total	56.92889	99			
Social	Between Groups	6.002584	1	6.002584	5.510	0.021
	Within Groups	106.7474	98	1.089259		
	Total	112.75	99			
Quality	Between Groups	4.048946	1	4.048946	4.421	0.038
	Within Groups	89.74994	98	0.915816		

	Total	93.79889	99	7.789226		

Table 4.19 ONE WAY ANOVA according to Gender

Table [4.19] above indicates that:

- There is no statistically significant difference (α≤0.05) in attrition as a result of economical factors which can be attributed to gender.
- There is a statistically significant difference (α≤0.05) in attrition as a result of technology, social, and quality factors which can be attributed to gender.

2. Age:

Age		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Technology	Between Groups	4.473958	1	1.491319	2.755	0.047
	Within Groups	51.96604	98	0.541313		
	Total	56.44	99			
Economy	Between Groups	4.293272	1	1.431091	2.610	0.056
	Within Groups	52.63562	98	0.548288		
	Total	56.92889	99			
Social	Between Groups	7.899819	1	2.633273	2.411	0.072
	Within Groups	104.8502	98	1.092189		
	Total	112.75	99			
Quality	Between Groups	12.53601	1	4.17867	4.936	0.003
	Within Groups	81.26288	98	0.846488		
	Total	93.79889	99	1.491319		

Table 4.20 ONE WAY ANOVA according to Age

Table [4.20] above indicates that:

- There is no statistically significant difference (α≤0.05) in attrition as a result of social factors and economical factors which can be attributed to age.
- There is a statistically significant difference (α≤0.05) in attrition as a result of technology and quality factors which can be attributed to age.

3. Income:

Income		Sum of Squares	df	Mean Square	F	Sig.
Technology	Between Groups	3.421801	1	1.1406	2.065	0.110
	Within Groups	53.0182	98	0.552273		
	Total	56.44	99			
Economy	Between Groups	8.43647	1	2.812157	5.567	0.001
	Within Groups	48.49242	98	0.505129		
	Total	56.92889	99			
Social	Between Groups	10.40379	1	3.467931	3.253	0.025
	Within Groups	102.3462	98	1.066106		
	Total	112.75	99			
Quality	Between Groups	16.573	1	5.524463	6.868	0.000
	Within Groups	77.2255	98	0.804432		
	Total	93.79889	99	1.491319		

Table 4.21 ONE WAY ANOVA according to Income

Table [4.21] above indicates that:

There is no statistically significant difference (α≤0.05) in attrition as a result of technology factors which can be attributed to income.

There is a statistically significant difference (α≤0.05) in attrition as a result of economical, social and quality factors which can be attributed to income.

4. Residency:

Residency		Sum of Squares	df	Mean Square	F	Sig.
Technology	Between Groups	2.851463	1	1.425732	2.581	0.081
	Within Groups	53.58854	98	0.552459		
	Total	56.44	99			
Economy	Between Groups	7.568922	1	3.784461	7.437	0.001
	Within Groups	49.35997	98	0.508866		
	Total	56.92889	99			
Social	Between Groups	9.458258	1	4.729129	4.441	0.014
	Within Groups	103.2917	98	1.064863		
	Total	112.75	99			
Quality	Between Groups	10.74605	1	5.373024	6.275	0.003
	Within Groups	83.05284	98	0.856215		
	Total	93.79889	99	1.425732		

Table 4.22 ONE WAY ANOVA according to Residency

Table [4.22] above indicates that:

There is no statistically significant difference (α≤0.05) in attrition as a result of technology factors which can be attributed to residency.

There is a statistically significant difference ($\alpha \leq 0.05$) in attrition as a result of economical, social and quality factors which can be attributed to residency.

4.9 Results of Analyzing Qualitative Data

4.9.1 Qualitative Data Analyzing Method

The qualitative data that has been gathered will be analyzed through the following process (Malhotra & Bricks, 2003):

First step is the Data Assembly, which is the data gathered from a variety of disparate sources, including many sources in general such as:

1. Reflections of researcher's observations involving the data collection process.
2. Theoretical support- from secondary data, literature sources.
3. Documents produced by and from respondents.
4. Notes taken during or after interviewing or observations.

As for this research in particular, the notes taken during and after the interviews are the main source of qualitative data gathered, such a qualitative investigation evolves in the sense of the issues to be explored to respondents of target audience, in such a process of field notes guides the researcher's memory when reaching the formal process of data analysis, and also it generates a 'deeper and more general sense of what is happening'.

As the interview takes place, the researcher reveals more about the subject issue and develops a new questions or probe, eliminating any questions that are thought to be vital, but are no longer so.

The second step after data assembly is Data Reduction that involves handling the data, which involves organizing and structuring the data gathered.

In this step some data have to be thrown away, through the interview memory and notes of the moderator, that take part in the interview, beside the transcripts of what actually said in the interview from respondents in the form of mood boards, such transcripts are a vital part of the qualitative data analysis, and should be handled with care in typing them.

In producing transcripts, data gathered will be coded, breaking down the data into discrete chunks and referencing these chunks of data, coding is an important step in copying with qualitative data analysis.

The third step after data reduction is the Data Display, which involves summarizing and presenting the structure of the collected data. The data display allows a view of how the researcher is making connections between the different 'data chunks'.

The data display may be taken from a graphical format, with boxes summarizing issues, that emerged and connecting arrows showing the interconnection between issues. Allowing the researcher to see the overall structure and reaching a general meaning in the collected data.

One of the simplest means in displaying data gathered from interviews conducted and issues tackled through the research, is through the use of spread sheets, which can be built in electronic format or manually, using large spread sheets of papers, use of flip charts, divided into a grid and the chunks of the transcripts physically pasted in.

Such approach turns the whole data into a visual body, moving around the data with ideas and connections, changes can be made easily and quickly in moving the data around, re-categorizing and incorporating new material.

The last stage in the process of the qualitative data analysis is the Data Verification, which involves searching for similar research findings and explanations that are taken from different contexts, time frames and researches. As for this research, such findings were not found; a search process was carried out by the researcher for similar researches conducted in the same area of this study, some similar studies were found, but not in the same arena in Jordan.

4.9.2 Qualitative Data Analyzing Results

Two in-depth interviews have been performed (check appendix B) to uncover underlying motivations, beliefs, attitude and feelings on the research subject.

As mentioned in previous section, the process of analyzing the qualitative data started by going through the questions answered by the interviews, discussing the questions carefully with them and writing notes that has been mentioned or remarks during the interview.

Afterward, all unrelated answers and subjects the interviewee aroused during the interview was eliminated, like giving more information than requested about the product.

The data was analyzed after the filtering process, it was assembled, reduced and organized in categories and data codes, and then a comparison between interviewee's statements is done as follows:

1. First data code “Difficulties that you face with customers when dealing with new packages/offers” mentioned one time in the interview.
2. Second data code "How do you evaluate the number of subscribers at your organization " Mentioned one time in each interview.

3. Third data code “Data methods are used at your company and in the effect between data methods and survey methods, in measuring customer attrition at your company " mentioned two times in two interviews.
4. Fourth data code “Measure that rates attrition at your company " mentioned once in each interview.
5. Fifth data code “Describe the relationship between customer attrition and the following factors (social, technical, economical, quality, price and user friendly) with elaboration” mentioned once in two interviews.

The table [4.23] below shows the codes of data mentioned in the interviews:

Data codes	Interview number
Difficulties that you face with customers when dealing with new packages/offers	Interview 1& 2
How do you evaluate the number of subscribers at the organization	Interview 1&2
Data methods are used at your company and in the effect between data methods and survey methods, in measuring customer attrition at your company	Interview 1& 2
Measure that rates attrition at your company	Interview 1& 2
Describe the relationship between customer attrition and the following factors (social, technical, economical, quality, price and user friendly) with elaboration	Interview 1& 2

Table [4.23] Data codes of the Interviews

The codes have been assigned to the main data category inquired in the interview, which gives an indication about how each interviewee handled and answered the questions in the interview, coding the data and categorizing the questions in the interview, makes it easier and clearer to justify each answer and to establish a comparison between answers of each interviewee, analyzing their answers to reach the desired result.

Starting with the first code “Difficulties that you face with customers when dealing with new packages/offers”, both interviewees have agreed upon some difficulties that they face when introducing a new package or offer in the market, competition upon price

misleads customers and puts them in a dilemma in choosing the best offer and/or device, both of them consented upon taking into consideration in new packages/offers, that the customer awareness about the benefits of the device is only correlated with the price they are paying as their guide to choosing the service provider.

Moving to code two “How do you evaluate the number of subscribers at the organization”, both interviewees were asked this question directly, each of them had similar answer, but interviewee no. two added the customer retention concept as a way of keeping track of their customers, and also the rewarding schema that they use to keep customers loyal, and giving them a motivation to stay, on the other hand, interviewee no. 1 did not consider a rewarding system for those customers that have been with them for a long period.

Code number three “Data methods are used at your company and in the effect between data methods and survey methods is measuring customer attrition at your company” interviewee no. one indicates that they have both methods in collecting data about customer attrition, which are data mining and survey methods, on the other hand interviewee no. two declares that they have developed methods and churn models that focuses on regular daily calculations, weekly and monthly reports related to detailed Key Performance Indicators (KPIs) beside the regular survey and data mining methods.

Fourth code “Measure that rates attrition at your company” interviewee number no. 1 implies that they have specialized units that have a churn percentage of churners and life time value that are considered an idle indicator and measurement for customer attrition, as for interviewee no. 2 he mentioned that he uses the same measurement technique that interviewee no.1 uses in his company to measure customer attrition , as a conclusion both interviewees agrees upon having the same customer attrition measurement rate.

Fifth code "Describe the relationship between customer attrition and the following factors (social, technical, economical, quality, price and user friendly) with elaboration ", both interviewees had dissimilar answers, but their answers explanations had a great effect in forming the questionnaire to be distributed later to customers.

The final step in analyzing qualitative data after finishing with the coding part, is displaying the data; the table [4.24] on next page is a manual spread sheet that contains the questions answers and the interviewer's particulars.

From the analysis done through the manual spread sheet, through the interviews a lot of results have been revealed to meeting the research objectives.

Interviews have identified the following results:

1. Methods used in Umniah are more developed when it comes to keeping customers, the data mining techniques used are more appealing and rewarding, so the advancement not just in the device or the service that the company is offering and their role in determining the customer attrition rate, but also the techniques that are used to reveal the weakness of the data base is the essential step in the whole process.
2. According to quality, interviewee no.1 sees that it is a factor that affects the customer attrition in a positive way, by providing a high standard of quality in both service and product and mainly service makes the customer satisfied and keeps him away from temptation from other service providers that uses the price as a weapon in switching customers and stimulating them as well, as for interviewee no.2, he sees quality as an important factor that may cause customers to switch to other providers in the market, but in many cases, the customers may favor price over quality and chose the lowest price in the market.

Interviewees Issues	Interviewee no. 1 Name: Waleed Abu Manneh Company: Orange mobile company Poisition: Marketing Manager	Interviewee no. 2 Name: Ahmad Darwazeh Company: Umniah mobile company Poisition: Marketing pricing manager	Notes/ Similarities and differences
Difficulties facing the customer when choosing a mobile device	Strong awareness	Strong awareness	Interviewee no. 1 does agree with interviewee no.2 in the matter of difficulties facing customers when choosing a mobile device
Evaluating the number of subscribers at the organization	Reports from different systems Shows ordinary reports about the number of subscribers	Uses acquisition and reward loyalty programs to increase and reinforce the number of subscribers	Both has different approaches in evaluating their subscribers database obviously interviewer no. two has more emphasis and techniques
Describe the relationship between the customer attrition and social, technology, economical, quality and user friendly	Social positive Technology negative Economy positive User friendly moderate Quality positive	Social positive Technology positive Economy negative User friendly moderate Quality positive	Interviewee no 1 consider that the social, economy and quality have positive relationship, technology have negative and user friendly is moderate interviewee no.2 consider social, technology and quality as positive relationship, user friendly as moderate and economy as negative
Methods used to collect data about customer attrition	Data mining and survey methods	Market research studies Behavioral analysis Churn analysis KPI Customer profile data	Approaches are different interviewee no1 is taking traditional ways, in contrast interviewee no.2 uses more professional techniques
Difference in using data collecting methods	Difference in providing different information	There is a difference	Both agrees that there is a difference in data techniques used
Measuring rate for customer attrition	Yes we have a measuring rate	Yes we have a measuring rate	Both have the same measuring rate for customer attrition

Table [4.24] Interviews spread sheet

3. Economy is a perspective factor, that can be measure both way in its affect to the customer attrition, nevertheless that the more the economy is stable the more the customers are into the best not the cheapest, but as the interviewees indicated that the economy status makes the customer reconsider his priorities when it comes to adopting a new mobile service provider, nevertheless, interviewee no. 2 eliminate the service prices from being the reason for customer attrition since they offer the lowest price in the market.
4. Both interviewees agreed that social factor is one of the important factors affecting the customer attrition, simply if the family and friends of the subscribe are not with the same service provider, it will be difficult and expensive for the subscriber to communicate with them and will finally lead him/her to switch to the operator that the majority of his friends and family are subscribed to, increasing the number of churns in the company.
5. Awareness Umniah to the customer attrition matter and the techniques used, gives them a more accurate approach in reaching their customers and keeping them in, decreasing the number of churns as much as possible in a highly competitive market by the retention and loyalty programs.
6. Another result that meets the objectives of the research is the technology part that might be a factor stimulating and getting customer in by exclusively having a technology or service other providers in the market does not have, interviewee no. 1 considered this factor as an important factor in customer attrition, but not necessary to the company he works for, since Orange is a pioneer company in Jordan in following the most recent mobile and network technologies in the world, being the pioneer will not only grant the company the privilege of price skimming, it will also enable it of building a large a and stable customer base.

Chapter five

Conclusion & Recommendations

5.1 Introduction

This chapter includes objectives and hypothesis of the research, conclusion per research objectives, hypothesis and suggestions for future researches; it includes also previous studies that met the research objectives, hypothesis, and recommendations.

5.2 Research Objectives

1- To identify factors affecting customer attrition in Umniah in the Jordanian telecommunication market.

2- To measure factors that impact customer attrition.

3- To propose suggestions and recommendations that can be used to minimize customer attrition in Umniah.

5.3 Fulfillment of Objectives

The concept of customer attrition is playing a vital role in the telecommunication section, knowing that it is a highly competitive market, and that customers are being attracted to the best telecommunication provider in the Jordanian market, through various factors, that are the drivers for their behaviors in adopting a service provider to receive the service from, and making customers switch from a provider to another, the promotions, offers and other stimulus used by competitors had arisen the concept of customer attrition.

Customers switching from a vender to another in the Jordanian telecommunication market decreasing the level of customer loyalty that has three mobile providers making competition hard among them.

Making the customer move from a service provider to another, depends on many factors that drives the customers behavior to chose a service provider; price, quality, communication and many other factors that are affecting the customers attitude toward telecommunication companies in the Jordanian market, that the study revealed and measured through objectives, hypothesis and previous studies that have been set in this study.

Another aspect that the study did focus on is the relationship between the customer attrition and the independent factors that added important findings to the study, meeting the objectives and the measurement of attrition.

The research also introduced the data mining techniques used by telecom companies and how to develop a model depending on the findings of this study that serves the prediction of future churners.

- **Objective 1: [To identify factors affecting customer attrition in Umniah in the Jordanian telecommunication market]**

  The telecommunication sector is a sector that deals with services, which are intangible, and the value of them is added through tangible independent variables that are suggested in the study; technology, economy, quality, and social variables that were contrived from the literature review conducted in chapter 2, these factors play a vital role in the affect of customer attrition in the Jordanian mobile telecommunication market, what makes the customer stay with the company are very sensitive factors that drives them toward switching from a provider to another, keeping in mind that the importance of each factor and the elements in each factor all plays a role in rating the customer attrition, and predicting customer attrition in Umniah as one of the

leading telecommunication mobile provider in the Jordanian market, the following are the factors:

1. Technology factor: Customers are more stimulated to companies that provides the latest technology, following the latest technology made Umniah more confident toward its customers in the market focusing more on their needs and wants, taking into consideration that technology provided by the three mobile companies are approximately the same, this factor was proved by this study not to have effect in the customer attrition in Umniah.
2. Economy Factor: The economy factor on the other hand, was considered as the most important factor in customer attrition by many researchers and former studies, however, although the customers in Jordan are considered price sensitive and that the Jordanian market is considered a price oriented market, the results revealed that the service prices and transaction tariffs don't have effect in customer attrition in Umniah, the main reasons behind this finding, that the harsh competition between the mobile companies made the service cost is almost the same, beside that Umniah is providing the lowest price in the market.

3. Quality Factor: The results shows that the call voice clarity, uninterrupted calls, network coverage area and support services provided by call centers, have an important effect in customer attrition in Umniah, although a recent study by the Telecommunications Regulatory Commission (*TRC*) in December 2010, showed that Umniah scored 64% in call clarity measurement, the other two companies scored 62% by Zain and 68% by Orange, regarding the interrupted voice calls, Umniah scored 4.7%, Zain scored 3.4% and Orange scored 4.2%, and regarding

the network coverage, the three companies have approximately an identical coverage areas

As we can notice from figures above, the three companies providing mobile services in Jordan have very similar scores regarding quality, which means that the quality factor is a major factor effecting customer attrition not just in Umniah, but in the three companies in Jordan as well, and that the quality is a common problem in the three companies, this can be explained by natural causes, such as weather, wind speed and mountainous earth surface nature or by the fact that coverage quality can be effected by the network coverage of other companies in neighbor countries.

In this situation, the common quality scores eliminated the possibility of one company having quality as a competitive advantage while the other companies don't have,

4. Social factor: The other factor that the study identified to have an effect on customer attrition beside the quality factor is the social factor, when a customer wants to subscribe with a service provider, the most important element in his choice is the ability to communicate with others and whether their availability on the same provider or not, in addition to the customer image that is presented by the mobile provider chosen, this factor was proved to have a direct effect to customer attrition in Umniah.

- **Objective 2: [To measure factors that impact customer attrition]**

To measure the factors impacts on the customer attrition, sub factors were established and a Likert scale question for each sub factor was designed to measure the factor properly, the factors and the subs factors contrived from the literature

review and the unstructured interviews along with their definition and corresponding Likert scale question were discussed thoroughly in chapter one section five.

- **Objective 3: [To propose suggestions and recommendations that can be used to minimize customer attrition in Umniah]**

  The fulfillment of this objective in covered in section 5.7 later in this chapter

5.4 Results from related studies

The following are the studies found that are related to the subject of this study:

1. 'The effect of service quality on customer satisfaction of the Jordan Telecom Group - A field Study' by 'Omar Moh'd Raouf' 'Mahmoud Hayajnieh.

   Study results shows that, there are variation in individuals perspective toward quality of service, and it was rated 3.9% of the respondents in the study agrees that companies (appearance and image), are important factors of the level of quality they provide for their customers, as well as safety, reliability, efficiency and credibility are elements that the telecommunication service provider in the Jordanian market should take in consideration.

   Other results in the study showed that members of the study are related toward the satisfaction they are receiving from their telecommunication service provider, and the justification behind it, is the availability of the services the company provides, and the resources that offers the service as well (employees).

2. 'Developing a model for measuring customer's satisfaction and loyalty in the Jordanian mobile phones companies' by Emad Yosef Qasem Masoud for Phd Marketing Degree, Amman Arab University for High Education, August 2007.

Results showed that there is a relationship between price and customer satisfaction, the perspective price for the service is 35% in variance for the customer satisfaction, and the importance of price plays a vital role in shaping the customer satisfaction in the Jordanian mobile market, which is also assured by Woo and Fock study in 1999, that shows the price is the second important element after the quality regarding customers satisfaction in Hong Kong mobile market, where price is the main criteria for comparison that customers use, the same result also applies on the Jordanian market.

Another interesting factor in the study is communication, the variance in communication is 30.9% for customer satisfaction, having a direct impact on customer satisfaction, the effect of communication is interesting in the Jordanian mobile market , communication became an important factor in differentiating between companies, communication provides essential information, in a clear helpful way that reinforces satisfaction and comes back in a positive effect on the company, also the usage of communication in providing information that makes relationship between customers and the company more appealing.

Results of quality as an important factor effecting customers satisfaction as previous results shows (Kim et al., 2004), that indicates that mobile service providers in South Korea, emphasizes on customer loyalty that was remarked by (Palker, 2004), revealing customer satisfaction as the most important factor in formulating customer loyalty in the Indian mobile market as well.

Finally ANOVA analysis used in the study showed that there are differences in customer satisfaction depending on loyalty to the service provider, these differences are essential to determine the effect of customer satisfaction on the Jordanian mobile market.

3. ‘The impact of information technology on customer satisfaction’ by Rami Sami Tarazi, ‘A case study’ April, 2001 at the HSBC Middel East Bank.

   The main finding in the study reinforces the objectives and results in my study as well, the technology factor shows that customers are positively affected by technology, about 42.7% of the respondents in the study agrees that technology has a positive impact on their relationship with their service provider, the comprehensiveness the Tarazi study has on how technology has on banking services sectors, and in particular the mobile banking services, providing the massages services and the value it adds to the banking service, such a result emphasizes on the idea that technology is in relationship with customers satisfaction, adding value to the services provided adds a competitive advantage to the company operating in a highly competitive market.

4. Other studies did not have a significant relationship with this research, but many points were taken into consideration when contriving factors and comparing results.

5.5 Data Mining

5.5.1 Data Mining Techniques

The telecommunication service market has become more competitive than ever, especially the mobile service provider.(Gerpott, Rams, & Schindler, 2001; Kappert & Omta, 1997), such a trend drove subscribers to switch from a service provider to another, that lead telecommunication companies to focus more on keeping their customers to be drafted to competitors in the market, giving the fact that recruiting a

new customers is more costly than keeping existing one, also customer retention has become now more important than customer acquisition.

In addition, the telecommunication are setting marketing strategies to prevent as many customers as possible from churning, according to Hughes (2010) in an article published by database marketing institute, says that all industry faces customer churn, especially telecom companies whose churn ratio would be average between 10 to 67 percent per year.(Hughes, 2010)

Churn is a common phenomena that is arising in telecommunication industry, it refers to the customers who left the company, the ability predict those customers in advance and knowing their attributes can lead companies to take actions to minimizing customer attrition, help marketing programs to target more customers and predict the length of customer life time and the future revenue as well.(Teemu Mutanen, 2006).

The customer attrition arises at the maturity stage the industry reaches, at the growth stage; the customer attrition is not considered a problem as long as the number of customers is growing in an acceptable manner.

One of the methods to predict customer attrition is the survival statistical method, that is designed to longitudinal data on the occurrence of the event, keeping track of customer transactions, but this method is difficult to implement for two reasons; censoring and time-dependent covariates.

In general, the survival analysis, is the best efficient tool to predict customer churn, by observing a set of customers at some point of time , and then follow them for some substantial period of time, recording the times at which customer churn occur, It’s not necessary that every customer experience churn (customers who are yet to experience churn are called censored cases, while those customers who already churned are called observed cases), in this way companies are capable of not just predicting the time of

customer churn, but also the analysis of time dependent covariates impact and timing of customer churn.(Junxiang Lu, 2002).

Existing churn prediction systems have several disadvantages that are listed as follows:

1. The use of demographics data in churn prediction focus on the customers rather than contract or subscriber (churning is calculated per customer rather than per contract).
2. Information on some of the input variables is not readily available.
3. Unavailability of customer profiles, limits the applicability of existing prediction systems.
4. Changes in call patterns are extracted from subscribers call details, such information is important for churn prediction systems.

Another aspect that is connected to the customer attrition, is the ability to provide a high level of quality service, the telecommunication industry especially in the mobile services, are witnessing high levels of pressure in enhancing data delivery, global roaming, internet access, email and even video services through mobile phones, making companies in need to keep pace with the changes to meet the customer needs to the level of satisfaction.

In addition achieving success to satisfying customers and providing a high level of quality that leads to attracting and retaining a growing, loyal customer base.

Quality service enables companies in the telecommunication industry especially the mobile sector providers, to measure the level of customer satisfaction that the customers are receiving.

In today's business, world company's database should store data, to be used to get information about customer value, satisfaction, loyalty and most Importantly prediction of behavior, to be able to obtain such a complex analysis of information can be adopted through two ways, either purchasing a commercial software or implementing a solution based on one of the many data mining techniques developed for such a purpose.

Data mining is the process of selecting, exploring and modeling large amounts of data to uncover previously unknown relationships and patterns of behavior.(Alan Wilson, 2003). Having complex databases, makes it difficult for managers to set all possible hypotheses and questions to test data with and searching for relationships and patterns. Such weakness is being overcome through the data mining software that is capable of reporting on all possible trends among data elements, using probability and statistics that determine the relationships that are at least likely to have a chance and can be considered significant.

Managers should be aware of the fact that data mining should be ruthless in determining patterns in investigating further and ones they should discard, because of the possibility of wasting more time in data mining than saving, which can distract attention by focusing on patterns that have no commercial relevance, keeping in mind, that a churn model can be created and the rules governing it can be discovered. However, the date obtained from data mining are not always certain and full, sometimes they are of a qualitative rather than quantitative nature,

Data mining tools are based on the performance of the exploratory and confirmatory statistics, to be able to reveal and validate relationships, tools in data mining extends the confirmatory approach by allowing an automated examination on a large number of hypotheses.

There are numerous techniques that are used in data mining; often they are used together, depending on the type of data available and the nature of information used.

The Following are the techniques used in data mining (Donald R. Cooper, Pamela S. Schindler, 2003):

1. Data visualizing: uses two types of interactive queries, the first is available to the end user by query language and the second query is more complex that goes beyond traditional two-dimensional row and column data analysis. Using an online analytical processing tool.
2. Clustering : is used as the first step in data mining, enabling researchers to segment the population through the use of algorithms that identifying similar characteristics in data set, after words partition are built and then they are divided into groups known as 'nearest neighbors'.
3. Neural networks: which are artificial neural networks, representing collections of simple processing nodes that are connected; they are best used when a predictive model is used more useful than explanatory model.
4. Tree model: using a hierarchy of data and setting statements based on the values and variables, creating a tree shaped structure representing segregation decisions.
5. Classification: using a model that classifies the population of records into large classes, and once it is developed the model can correctly classify new records into the same predefined classes.
6. Estimation: is a variation of classifications, using scores rather than using binary classifier.

7. Association: a process that is used to recognize and understand patterns in the data.

8. Another mining techniques:

    a. Market basket analysis: a form of association

    b. Sequence based analysis.

    c. Fuzzy logic

    d. Genetic algorithms

    e. Fractal based transformation

5.5.2 Data Mining Process

Data mining process involves five step processes as follows:

1- Sample: the raw data should be sampled by creating one or more data tables, the samples should be large enough to contain the significant information, yet small enough to process.

2- Explore: after the data is sampled, an appropriate technique must be chosen, the data is explored either visually or numerically.

3- Modify: the data should be modified either through clustering, fractural transformation or application of fuzzy logic.

4- Model: after finishing the data preparation stages, the construction of a data model begins by using neural networks, decision trees, sequence-based classifications, genetic based models or any proper analytical tools to search for a combination of the data that reliably predicts a desired outcome.

5- Assess: final step in data mining is to asses and estimate how well the model is performing, by applying a portion of data.

Figure (5.1) on next page illustrates a diagram that shows a summary of the Data Mining Process.

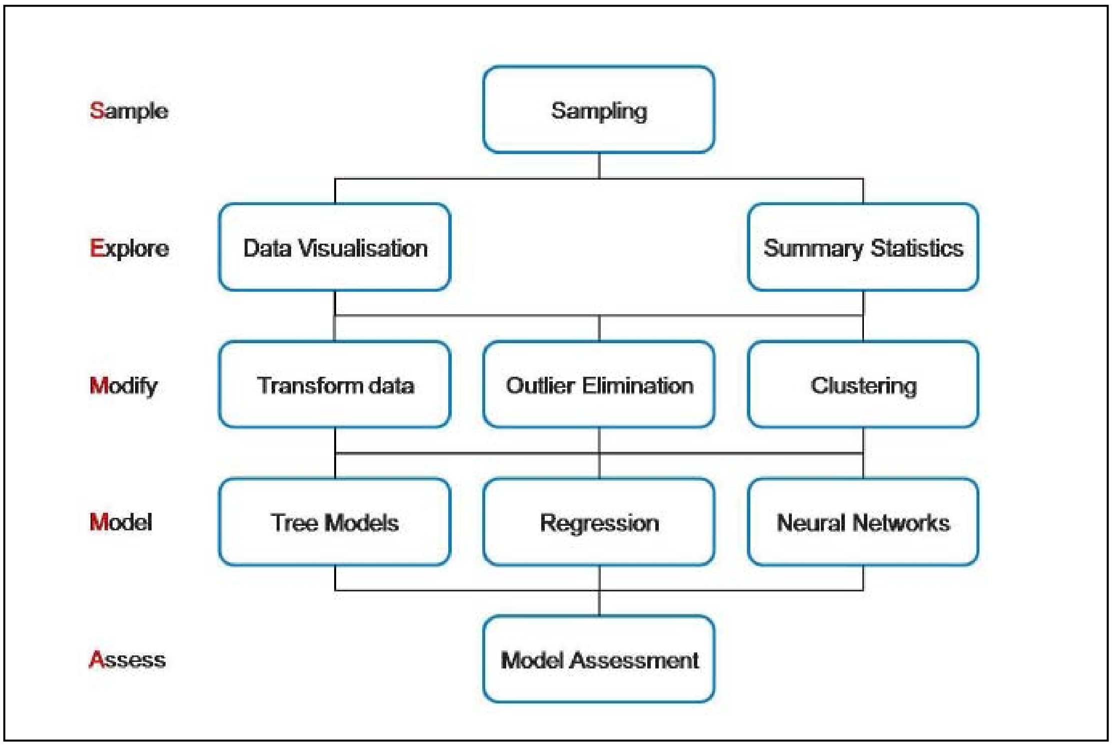


Figure [5.1] Data Mining Process

5.5.3 Data Mining Model Suggested For Umniah

Umniah is one of the successful companies in the Jordanian Telecommunication Market, experiencing a spectacular growth, which was achieved through aggressive pricing and innovative features.

Umniah has been the first in the market to offer billing tariff by seconds, the first to offer vehicle tracking , voice massages and many other value added services (VAS), which are an important drivers in increasing overall market penetration, gaining market

share at the expense of main competitors such as Zain (market share down from 60% to 40%).(www.umniah.com)

Umniah is customer oriented company in the way it manages its business, and always updating its resources toward customer satisfaction. Umniah has cooperated with 'Pario' and 'DMX' a business intelligence data warehouses, both are data warehousing providers that serves a technical referencing to data mining applications built to perform the churn prediction.

Following is a suggested Data mining Model that is depending on information from the study results of the objectives, hypotheses and interviews to best serve the model as a whole.

The Model goes through the following stages:

- First stage: before starting with the data mining model, the problem should be defined, knowing that the data mining process is an interactive process, and also the fact that each step may get repeated multiple times until reaching the optimal results.

  The problem that Umniah is facing is customer attrition 'churn' that are defined into two types:

  1- Post paid churner: subscribers that stop using the service for consecutive three months.

  2- Prepaid churner: subscribers that are subjected to the recycling process because of violations to rules in prepaid service.

- Second stage: preparing data by formatting the data storage and aggregations, which are inputs to the prediction models.

The data storage is constructed into two data bases:

1- Churn staging: data base hosting monthly operations and processes needed to construct the monthly inputs of the churn models

2- Data mart called Churn: stores aggregation along with the churn prediction results and subscriber monthly churn scores

Both data storage are hosted on Umniah local site, which is connected to its main network system.

- Third stage: building the model upon two techniques:

    1- Algorithms: predicates the relationship between input columns in the database and predictable column.

    2- Decision trees: makes the predictions of customer's attrition "churn" based on tendency toward a particular outcome.

- Fourth stage: predicting discrete columns through building a decision tree for a discrete predictable column using a histogram.

- Fifth stage: models inputs are divided into two groups:

    1- The attributes (age, city, marital status … etc)

    2- The behaviors (count and average of friends and family calls ... etc).

The inputs that are most useful in predicting churn list are subscriber's identity, normalized subscribers, monthly average for subscriber's calls, on net calls (calls within the company network) as a percentage on monthly average and the percentage of the off net calls (calls outside the company network) on monthly average. All the listed inputs are mainly behavioral inputs that use in predicting the model.

- Sixth and last stage: prediction model results and accuracy, the accuracy is to be measured by two main measures, the first one is detection rate, which is the count of actual predicted churners divided by the count of actual churners., the second measurement is the accuracy which is the count of actual predicted churner divided by the count of predicted churners.

Figure (5.2) on next page illustrates a summary of the 7 stages indicated in my suggested Data Mining Model for Umniah.

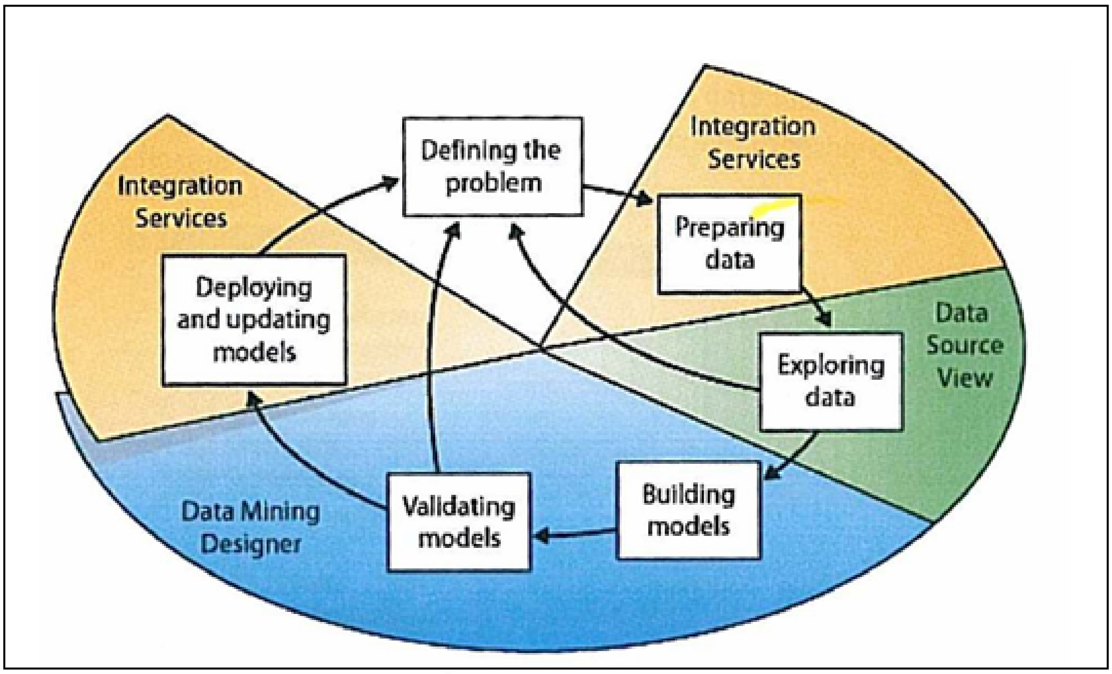


Figure [5.2] Data Mining Process cycle

5.6 Conclusions, Implications, and Discussions

The study reaches the following conclusions:

1. Registering subscription and start using Umniah mobile service is a worry-free and easy process.
2. Umniah provides customers with many types of mobile service packages with various subscription fees ranges.

3. Umniah per second calls tariff is a money saver for customer.
4. Umniah service network generation version is sufficient for the customers need.
5. Customers are capable of using all the features of their mobiles while using Umniah service.
6. There is no statistically significant relationship between technology and customer attrition in Umniah.
7. There is no statistically significant relationship between economical factors and customer attrition.
8. There is statistically significant relationship between social factors and customer attrition.
9. There is statistically significant relationship between quality and customer attrition.
10. There is a statistically significant difference in attrition as a result of technology, social and quality factors which can be attributed to gender.
11. There is a statistically significant difference in attrition as a result of technology, and quality factors which can be attributed to age.
12. There is a statistically significant difference in attrition as a result of economical, social and quality factors which can be attributed to residency.
13. There is a statistically significant difference in attrition as a result of economical, social and quality factors which can be attributed to income.

5.7 Recommendations

Depending on the field study the researcher reaches the following recommendations:

1. Umniah Should increase the quality of its call quality, voice clarity and uninterrupted calls, the study shows that quality has a significant effect on customer attrition.
2. Umniah should provide high innovative quality call centre services to its customers at all times, the study shows that this has an effect on customer attrition.
3. Umniah should provide competitive billing services excel by meeting all customers needs, the study shows that it has a significant effect on customer attrition.
4. Umniah should develop new services to meet the dynamic needs of its customers; the study shows that develop new services have an effect on customer attrition.
5. Umniah network coverage map should cover additional areas; the study shows that quality has an effect on customer attrition.
6. Umniah should adopt new technologies; although the study shows that technology factors has no effect on customer attrition, this result is believed to be valid only because all mobile companies have approximately the same technology adopted, so in order to keep this factor neutral to customer attrition in Umniah, the company should implement the latest applicable mobile technology in the local market and the international market as well.
7. Umniah should continue offering low price tariffs to customer, the study proved that there is no effect on customer attrition caused by the economy factor, but again, this is only valid while Umniah is offering a competitive prices that matches and even overwhelm the competitor's.
8. Umniah should consider the demographic factors that have explicit effect on the technology, social, economy and quality factors, when offering new packages and

services, by designing a custom-tailor packages that target male customers rather than females, customers who resides in certain territories in Jordan and cover all the society category regarding the income level, the new packages should also cover, teenagers, young and senior citizens.

9. The founding and recommendations of the study should be distributed to all mobile phone companies in Jordan because it has a great effect on studies and strategies related to the customer attrition.

5.8 Suggestions for Future Research

The fact that similar studies about the customer attrition in the telecommunication sector is not available, a repetition of the study on a large scale to include all the mobile provider companies using a large sample and apply additional quantitative research methods.

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Appendix A (Questionnaire)

I am a post graduate student at the university of Jordan, and I am conducting a field survey to collect data on a master level under the title of The factors affecting customer attrition in Umniah mobile company , I hope you will corporate in filling up the questionnaire, assuring confidentiality and it will be used for research paper only.

Find enclosed research questionnaire.

Yours truly

Post graduate student

Saed M. Al-Abdullah

Business Faculty

University of Jordan

Please choose the most appropriate answer from the alternatives below each of the following Questions:

1- Gender:
   a. Male
   b. Female

2- Age:
   a. Less than 25
   b. Between 25 to 39
   c. Between 40 to 54
   d. 55 or more

3- Educational level:
   a. High school
   b. Diploma
   c. B.A
   d. Master
   e. PhD

4- Income:
   a. Less than 300
   b. Between 300 to 600
   c. Between 600 to 1000
   d. More than 1000

5- Residency:
   a. Zarqa
   b. Irbid
   c. Aqaba
   d. Amman

6- How long have you been an Umniah customer?
   a. Less than one year
   b. 2-4 years
   c. More than 5 years

7- How many mobile subscriptions do you have?

   One line

   Two lines

   Three lines

umniah
belong

Please rate each of the following statements by placing a circle around the most appropriate case that matches your answer:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8. I could use all types of mobiles while using Umniah service.	1	2	3	4	5
9. I am capable of using all the features of my mobile while using Umniah service	1	2	3	4	5
10. Umniah service generation version is sufficient for my need	1	2	3	4	5
11. Umniah per second calls tariff is a money saver	1	2	3	4	5
12. Registering your subscription and start using Umniah mobile service was a worry-free and easy process	1	2	3	4	5
13. Umniah provides customers with many types of mobile service packages with various subscription fees ranges	1	2	3	4	5
14. Umniah network coverage map covers all the areas I used the mobile service in	1	2	3	4	5
15. Umniah Call quality is always a voice clarity and uninterrupted calls service	1	2	3	4	5
16. Umniah customer services and call centre are to provide innovative, high quality service to its customers at all times	1	2	3	4	5
17. Umniah competitive billing services excel by meeting the all you needs	1	2	3	4	5
18. Umniah entered the market with a unique look and feel. Its distinguished and vibrant identity not only broke through the clutter but reflected on the fresh approach that came along with the brand	1	2	3	4	5
19. Umniah is a pioneer in the development of new services to meet the dynamic needs of its customers	1	2	3	4	5
20. Many of my family and/or friends are using services provided by Umniah	1	2	3	4	5
21. I will probably leave mobile services provided by Umniah	1	2	3	4	5

Appendix B (Interview Questions)

Name:

Company:

Position:

Duration of the interview:

1- What are the difficulties that you face with customers when dealing with new packages/offers?
   a. Affect on current customers
   b. Ability to stimulate new customers

2- How do you evaluate the number of subscribers at your organization? Do you face a consistency or up's and down?

3- During your operations in the company, how do you describe the relationship between customer churn and the following factors (Positive, negative, moderate) with elaboration:
   a. Social factors (Image, Experimenting and Friends/Family)
   b. Technical factors (Handsets, Features and Network specifications)
   c. Economical factors (Per Minute/Second tariff, Activation process and Subscription fees)
   d. Quality (Coverage, Call Quality, Customer Service and Billing)

4- What data methods are used at your company (data mining or survey methods), to collect information about customers attrition (current perspective).

5- Do you experience any difference in the effect between data mining methods and survey methods, in measuring customer attrition at your company?

6- Do you have a measure that rates attrition at your company? If yes please elaborate.

العوامل المحددة لفقدان الزبائن في شركة أمنية للهواتف المتنقلة

إعداد

سائد محمد العبدالله

المشرف

الأستاذ الدكتور فريد نصيرات

ملخـــــــــــــص

تهدف هذه الدراسة إلى التعرف على العوامل الرئيسية المؤثرة في فقدان الزبائن في شركة أمنية في السوق الأردني.

الدراسة الحالية هي دراسة حالة، استخدمت المنهج الوصفي و التحليلي و المقابلات المفصلّة بهدف وصف و تحليل العوامل المؤثرة في فقدان الزبائن، من حيث العامل التقني (تقنية الهاتف المتنقل و مميزاته و تقنية الشبكة الهاتف المتنقل) و العامل الإقتصادي (تكلفة المكالمات وعملية إعداد الإشتراك لأول مرة و رسوم التشغيل) و عامل الجودة (تغطية الشبكة و جودة المكالمة و خدمة الزبائن) و العامل الإجتماعي (تجربة المشترك مع الشبكة و المظهر الإجتماعي و عامل الأصدقاء و العائلة)، ومعرفة ما إذا كان هناك فروقات ذات دلالة إحصائية لفقدان الزبائن تعزى للعوامل الديموغرافية (الجنس و العمر و الدخل و مكان السكن).

جاءت وحدة المعاينة مكونة من 100 زبون تم اختيارهم بشكل عشوائي من مجموع زبائن شركة أمنية الذين لم يستخدموا خدمات الشركة لمدة ثلاثة شهور أو أكثر في الأسبوع الأول من شهر مارس 2010، تم الاتصال بما مجموعه 338 من الزبائن السابقين حتى تم الحصول على 100 إستجابة صحيحة، كما تم التجهيز لأربع مقابلات مفصلة مع خبراء في هذا المجال و لكن فقط مقابلتان تمتا فعلا.

وقد اعتمدت الدراسة مجموعة من الأساليب والمعالجات الإحصائية لإظهار خصائص الأفراد المبحوثين واختبار الفرضيات، وكان منها برمجية (SPSS) لاستخراج التكرارات والنّسب المئوية والمتوسطات الحسابية والانحرافات المعيارية ، اختبار كرونباخ ألفا لقياس ثبات أداة الدراسة، اختبار (T-test) لاختبار انسجام العينة ، اختبار الانحدار البسيط والمتعدد لاختبار أثر كل عامل من العوامل التقنية والإقتصادية و الإجتماعية و عامل الجودة على فقدان الزبائن منفردا وكمجموعة ، و إختبار (one-way Anova) لإيجاد الفروقات ذات الدلالة الإحصائية لفقدان الزبائن كنتيجة للعوامل السابقة و التي تعزى للعوامل الديموغرافية.

توصلت الدراسة إلى مجموعة من النتائج منها:

1. لا يوجد علاقة ذات دلالة إحصائية بين العامل التقني و العامل الإقتصادي وبين فقدان الزبائن في أمنية.
2. يوجد علاقة ذات دلالة إحصائية بين العامل الإجتماعي و عامل الجودة وبين فقدان الزبائن في أمنية.
3. توجد فروقات ذات دلالة إحصائية لفقدان الزبائن في أمنية كنتيجة للعامل التقني و الإقتصادي والإجتماعي وعامل الجودة و التي تعزى لبعض العوامل الديموغرافية (الجنس و العمر و الدخل و مكان السكن).

وفي ضوء النتائج، تقدمت الدراسة بتوصية تنص على أنه يجب على شركة أمنية أن تبذل المزيد من الجهد والتركيز على العوامل الإجتماعية و عامل الجودة لأنهما أهم العوامل المؤثرة على فقدان الزبائن في أمنية ، و بالرغم من أن العامل التقني و العامل الإقتصادي ليس لهم تأثير على فقدان الزبائن في أمنية ، و لإبقاء هذان العاملان حيادي التأثير على عملية فقدان الزبائن، يجب على شركة أمنية أن تتفوق على منافسيها في التقنية المستخدمة و العروض المقدمة، أو على الأقل تقديم نفس العروض و التقنية المقدمة من منافسيها.